EFFECTIVENESS OF EMOTION RECOGNITION TRAINING ON SOCIAL AND EMOTIONAL SKILLS IN CHILDREN WITH AUTISM SPECTRUM DISORDERS

PhD Synopsis submitted to CHRIST (Deemed to be University) as partial requirement for the award of PhD Degree in Psychology

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by

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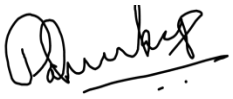
Signature of Scholar Signature of Supervisor 

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ABSTRACT

Several studies suggest a strong relationship between emotional skills and the acquisition of social skills. ***Objectives***: The study aims at exploring the improvement of emotional and social skills in children with Autism Spectrum Disorders as a result of emotion recognition training. ***Method***: In the quantitative phase, a sample of 10 children within three to six years of age who are within the Autism spectrum disorder were selected for the study. The emotion recognition training followed the modified and adapted version of the hands-on activities from the 'Let's Face It' curriculum which was validated after a pilot study. Each child was given 20 to 30 sessions of training. The participants were assessed for their social skills using Vineland Adaptive Behaviour Scale and emotional skills were assessed using ComDEALL Developmental Checklist, before, during, and after the Training. Parents of the participants were systematically guided for follow-up of the activities at home. The qualitative phase involved an interview with the parent with a semi-structured guide. ***Results:*** The quantitative and qualitative results indicated that there is a significant difference in the social skills and emotional skills of the children after the training. The results also showed a sufficient generalization of the skills achieved. An incidental finding involved the reduction of problem behaviours, which suggests that emotion recognition training is effective in reducing problem behaviours in the population under study. ***Conclusions:*** The study clearly shows that emotion recognition training is effective in improving social and emotional skills in children with Autism spectrum disorder.

Key words: emotion recognition, social skill, emotional skill

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Introduction

Prevalence of Autism Spectrum Disorder (ASD) has shown a rapid rate of increase within India and globally, in the recent times (Sadock, Sadock & Ruiz, 2015; Jaisoorya et al.,2017; Rudra et al, 2017) . Global estimates suggest 1 in 59 children is diagnosed with ASD (Christensen et al, 2018). Prevalence of 0.15% of individuals with ASD has been found in India (Raina et al, 2017). Characteristics of ASD include (DSM 5), deficits in social communication deviated patterns in social interaction, socio-emotional reciprocity, verbal and non-verbal communication and building relationships; and deficits in restricted, repetitive patterns of behaviour include stereotyped or repetitive motor movements, use of objects, or speech, Insistence on sameness, inflexible adherence to routines, fixated interests, hyper- or hypo-reactivity to sensory stimuli.

Deficits in social skills are one of the core deficits in individuals with ASD (APA, 2013). Deficits in social skills in early childhood can lead to internalizing and externalizing behavioural disorders, poor academic performance, in-appropriate interpersonal relationships, educational and cognitive impairments, isolation, and psychological issues later in life (Karimi, Keikhavani & Mohammadi, 2010; Hosokawa & Katsura, 2017; Parker & Asher, 1987; Ziv, 2013). Children with ASD, exhibit observable deficits in spontaneous play with peers and in subtle social abilities that promote developing friendships (Saddock, Saddock & Ruiz, 2015). Though social skills training programs have shown a lot of improvement in the social domain of the individuals involved, the generalizability of these skills is always questionable (Berggren, 2017). The ability to identify and recognize emotional cues and interpret the meaning of an emotion proves to be very important in social communication (Saarni, 2011). Instead of moving directly into social skills training, by focusing on social skills, the present study attempts to explore how improvement in emotional skills connects to social skills.

Emotional skills typically include understanding one's emotions, expressing one's emotions, and regulating one's responses based on another person's emotions. Studies suggest that relationships formed early in life are the foundation for the development of emotional skills and forms a base for future social relationships and is associated with greater emotional regulation, social competence, and well-being (Bergin &

Bergin, 2009). For a child with ASD, inherent difficulties with processing and understanding emotional expressions limit these learning. Many of his/her needs may not be communicated to the caregivers through the expected mode which brings limitations in parent's fulfilment of these needs for the child, which bring changes in parent-child attachment. These changes in the environment, combined with the difficulties in social communication, contribute very negatively towards the development of emotional skills in children with ASD. Difficulty in recognizing emotions from other faces is found to be especially difficult for this population (López, Donnelly, Hadwin & Leekam, 2004).

Research suggests that this is because these individuals focus more on the individual features of the face, rather than on the face as a whole (López, Donnelly, Hadwin & Leekam, 2004). Individuals with ASD have difficulty with making attributions about the motivation or intentions of others and thus have difficulty developing empathy (Sadock, Sadock & Ruiz, 2015). Individuals with ASD find it difficult to understand emotions from others faces and contextual cues (Uljarevic & Hamilton, 2013). Autistic children also have difficulty in recognizing how different expressions of particular emotions are associated with each other, and this might contribute to their failure to understand the emotional states of other people (Hobson, 1986). These limitations significantly impact on the social life of these individuals negatively. Though several studies support and contrast this statement, it has been proven that difficulties in emotion recognition can lead to significant difficulties including social exclusion, peer rejection, bullying, and isolation (Hill & Frith, 2003).

Recognizing emotions from others faces is a basic step in the emotional development of an individual as it guides any social interaction and leads to better social functioning. Studies have proven that when emotion recognition training focuses on components of facial expressions, it has a huge impact (Ryan & Charragain, 2010). However, these have not been tested sufficiently, with the Indian population. Studies also suggest that the ability to recognize emotions may vary with age (Schwenck et al, 2012), type of emotion (Poljac, 2012), and level of cognitive ability (Williams, Gray & Tong, 2012).

Studies consistently prove that parents' involvement is specifically efficient in facilitating social skills in individuals with ASD (Laugeson, Frankel, Mogil, & Dillon,

2009). Studies suggest that parental involvement might contribute to better generalizability of skills (Crockett, Fleming, Doepke & Stevens, 2007). Parent training is capable of producing a positive effect on children's social communication behaviour, parental performance, and parent-child interactions. (McConachie, & Diggle, 2007). This suggests that additional methods for educating the parents on their role might have a significant impact on their participation in the intervention. However, as parents are not as equipped as a professional to do interventions with their child, they need continuous guidance from professionals for successful involvement in the intervention (Harris, 1986).

Statement of the Problem

Research evidence suggests that emotion recognition may have a significant influence on social skills (Dawson and Fernald, 1987) and other emotional skills (Chasen, 2011) in general. When neuro-typical individuals achieve these skills early in their development, individuals with autism spectrum disorder delay behind in these dimensions, due to various inherent deficits (APA, 2013). It is proven that the earlier we expose these children to intervention, the better they can grasp these concepts and move out of most of their symptoms of autism spectrum disorder (Koegel, et. al, 2014). An effective intervention that includes socio-emotional skills in young children with Autism spectrum Disorders is essential to integrate them better into our society. Though several intervention programs exist for the improvement of these skills, the acquisition and generalization of these skills is often not satisfactory. The present study aims to study changes in emotional skills and social skills in children with Autism Spectrum disorders as a result of emotion recognition training.

Objective of the study

The objective of this mixed methods sequential explanatory study was to find out the effectiveness of emotion recognition training on the social and emotional skills of children with Autism Spectrum disorders by obtaining quantitative results from an intervention of 10 autistic children and then following up with four purposefully selected parents to explore those results in more depth through a qualitative thematic analysis. In the first, quantitative, phase of the study, the research questions focused on finding out the impact of the emotion recognition training on the social and emotional skills of children with Autism Spectrum disorders. The second, qualitative,

phase, parental perceptions and experiences are explored in-depth the results from the statistical tests.

Review of Literature

Early Intervention has proved to result in greater mainstreaming of the population with ASD. Karanth & Chandhok (2013) studied the impact of early intervention on children with ASD as measured by inclusion and retention in mainstream schools. The study found that 76.5 % of the samples were mainstreamed successfully into regular schools, post the Intervention program. This proves that Early intervention substantially helps in enrolment and retention of a significant number of children with ASD in mainstream schools.

A meta-analysis by Roth, Gillis & Reed (2014) on 43 articles suggest that behavioural interventions are a promising approach to aid in the improvement of individuals with ASD. A retrospective review by Gillis & Butler (2007) show that behavioural strategies, such as, prompting, reinforcement and modelling help in the improvement of social skills in individuals with ASD. However the efficiency with generalization of the social skills is not definite. Berggren (2017) attempted to explore the influence between emotion recognition and development of social skills in children by examining emotion recognition in children with ASD, its specificity to ASD, and connection to other cognitive functions. Four studies were systematically reviewed and analyzed. Findings reported that emotion recognition has a reliable role in reducing autism symptoms and socialization issues in autistic children. This understanding necessarily leads us to learn more about the influence of emotion recognition training. There are limited number of studies on emotion recognition and social emotional skills with the younger population (three to six years of age), especially within Indian context. As early intervention has proved its relevance and efficiency (Paul et al, 2015; Koegel, 2014; Karanth & Chandhok, 2013), learning the effects emotion recognition training could have on this population is of supreme importance. The effectiveness of emotion recognition training have to be explored and studied in greater depth as this might help us find a more reliable intervention for improvement of social and emotional skills in children with ASD.

Rationale of the study

Numerous studies have shown a significant relationship between the social and emotional domains of the Autistic population (Trevisan & Birmingham, 2013; Corbett

et al, 2014; Uljarevic & Hamilton, 2012). However, studies also show contrasting views about the nature of the connection (Fink et al, 2014; Wong, Beidel, Sarvar & Sims, 2012). Other studies have proven that social skills training given to the children at high risk of ASD may acquire the skills with training, but their generalization becomes a challenge (Berggren, et al., 2017). Many studies show that the generalizability of skills attained is not consistent. In this context, it is important to mention that some studies also show that emotion-based training helps in a better generalization of social and other skills attained (Ratcliff & Butterworth, 2014; Ryan & Charragain, 2010). However, the number of such studies carried out with younger children is limited and hence the applicability in this population becomes a question of high importance, especially in the Indian context. This proves the relevance of the present study as it focuses on the effects of emotion recognition training on the social and emotional domains of young children with ASD. It will help us incorporate this intervention to be a major part in Early Intervention for children with autism spectrum disorder.

Hypotheses

- There will be progressive improvements in the social skills of young children with Autism Spectrum disorders during and after emotion recognition training.
- There will be progressive improvements in the emotional skills of young children with Autism Spectrum disorders during and after emotion recognition training.

Research Question

- How do parents perceive and experience the changes in their child concerning socialization and emotional skills as a result of the emotion recognition training?

Method

Operational Definitions

- Children with Autism Spectrum Disorder: Children who are three to six years of age who have Autism spectrum disorder, which is a neuro-developmental disorder characterized by challenges with social skills, repetitive behaviours,

speech and nonverbal communication (American Psychiatric Association, 2013)

- Social skills are socially acceptable learned behaviours that enable a person to interact with others in ways that elicit positive responses and assist in avoiding negative responses (Gresham & Elliot, 1984)
- Emotional skills are skills necessary for the emotional understanding of self and others and thereby respond accordingly to his/her environment.
- Emotion Recognition Training: Training to improve emotion recognition which is the ability to perceive and interpret facial emotions (Tanaka, et al., 2012).

Variables

- Independent variable*:* 'Emotion Recognition training' that was given to the participants of the study.
- Dependent variables*:* social skills and emotional skills of the participant

Sample

Ten children were part of the study using a purposive sampling plan, after the positive consent from their parents. The consent form covers the assurance of confidentiality of their identity along with the benefits and possible risks of this research. The sample was selected after they were satisfied with the Inclusion and Exclusion Criteria. The sample size was finalized based on an intensive exploration of the following aspects:

- Lower prevalence of parents approaching Early Identification and Intervention (Brett., et. al, 2016; N. de Souza., et. al., 2005; Christensen et. al, 2015)was a major factor contributing to the lower sample size.
- Exploration of previous Ph.D. research conducted on Interventions with ASD in major universities in the World.

Inclusion and Exclusion Criteria

Inclusion Criteria

- Children within the age range of three to six years (Boyd. et, al., 2010; Koegel et al, 2014)
- Children who are diagnosed to have Autism Spectrum Disorder when assessed with INCLEN Diagnostic Tool for Autism and matched with DSM 5.
- Children who can respond verbally as revealed during the meeting for the screening tests. This is required because the Intervention tool follows a verbal prompt method.
- Children who have IQs of or above 70 as revealed by the Seguin Form Board Test. (This is to bring uniformity in the sample concerning intellectual capacity).
- Children whose parents consent to be a part of the intervention by following up on the activities by doing it at home.

Exclusion Criteria

- Participants with clinically significant problem behaviours were excluded as revealed by assessments with VABS-3.
- Participants who are part of other social skill training programs were excluded

Tools

Tools for Screening

- INCLEN Diagnostic Tool for autism was used to diagnose if the participant has Autism Spectrum Disorder. It was developed by Juneja, et al., (2014). It takes 45-60 minutes to administer. Merits of INDT-ASD include high diagnostic accuracy, adequate content validity, good internal consistency, and high criterion validity, high to moderate convergent validity, and easy to administer.

- Seguin Form Board Test was used as a screening tool to assess the Intelligence of the participants. It was devised by Seguin, a French physician and is used to assess the Intelligence Quotient (IQ) of children between 3 to 10 years. Goel and Bhargava (1990) in the handbook for SFB describe a significant correlation of SFB with other intelligence tests. This would substantiate the argument that the Indian norms are reliable and valid and that the SFB test can be used with equal facility to gauze the mental development of Indian children.

- The Vineland Adaptive Behaviour Scale – 3 (VABS-3) was used to assess problem behaviours before, during, and after the intervention. It was developed by Sara Sparrow, David Balla, & Domenic Cicchetti in 2016. It has been standardized with Hispanic, Asian, white, and African American populations. It has adequate internal consistency values ranging from 0.90-0.98. The test-retest reliability ranges from 0.80-0.92. Inter-rater reliability was 0.79. Adequate content, construct and concurrent validity have also been determined.

Tools for assessment before, during, and after the intervention:

- The Vineland Adaptive Behaviour Scale – 3 (VABS-3) was used to assess social skills before, during, and after the intervention. The Comprehensive Interview form will be used to collect subjective information on the social skills of the participants from their parents. This includes information on his/her interpersonal skills, play and leisure skills, and coping skills.

- The Interview was also used to reflect on the child's generalization of his/her social skills.

- The ComDEALL Developmental Checklist (CDDC) was used to assess the emotional skills of the participants before the intervention. It was developed by Karanth. P in 2007. The emotional skills checklist of this CDDC was used to assess the development in the emotional domain of the participant before he/she is considered for the intervention. It has inter-rater reliability of 0.927 and good content and constructs validity.

- CDDC was also be used to reflect on the child's generalization of his/her emotional skills.

- ***Tool for Qualitative Phase***

A Semi-structured interview guide was used for collecting subjective data from the parents. The tool was validated based on expert opinion of three experts. This data includes their perceptions and experiences of their child's improvement due course of the intervention.

- ***Tool for Intervention:***

The adapted and modified version of the hands-on activities of the 'Let's face it' curriculum was used for the intervention. The hands-on activities of the 'Let's face it' curriculum is a tool proven to improve the emotion recognition skills of individuals with Autism and have been used in various studies (Tanaka et al 2012; Xu & Tanaka, 2013). While other tools directly move to training for emotions, this tool emphasizes on face processing and then proceeds to facial emotional expressions. It followed a hierarchical model. In domain I, the focus is on 'Looking at Faces'. In domain II, the focus is on Recognizing Facial identity and expression. In domain III, the focus is on 'Understanding the social meaning of faces'. The hands-on activities of the 'Let's face it' curriculum were applied in the pilot study. Its benefits and drawbacks were carefully analyzed. These observations were used to revise the curriculum and adapt it to better suit the population under study. The adapted and modified curriculum was submitted to five experts for its validation. The suggestions of these experts were incorporated into the curriculum to produce the final emotion recognition training package.

Research Design

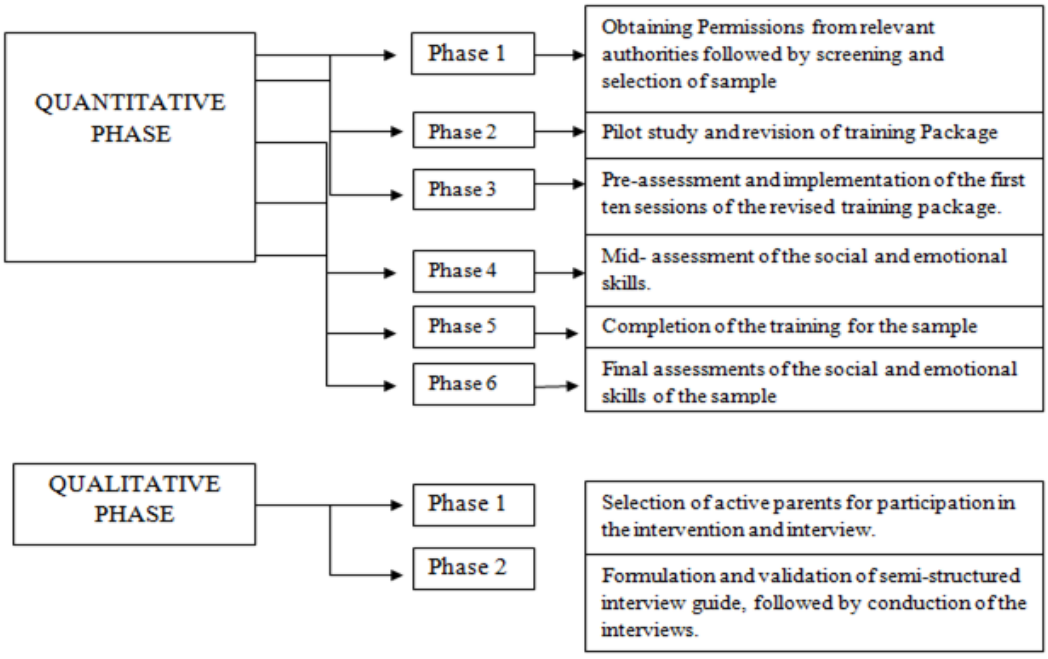
Sequential explanatory mixed methods research design was used for the study. Ten participants were studied in depth. The research took place in two phases. Quantitative and Qualitative phase. Initially, the participants were assessed on their emotional and social skills. After this, the emotion recognition training was given to the participants. After ten sessions, a re-assessment was done to assess their current level of skills. The training sessions are continued. After completion of the training

sessions, the final assessment was done. Based on how the child can grasp the skills focused on the training, it is decided upon whether the participant will require a total of twenty or thirty sessions. In the qualitative phase, the qualitative information is collected through a semi-structured interview with four purposefully selected parents, on their observations of their child, through the therapy. The quantitative and qualitative results will be analyzed to give the final results.

Procedure

Figure 1

Flowchart of the procedure followed in the study


QUANTITATIVE PHASE
Phase 1
Obtaining Permissions from relevant authorities followed by screening and selection of sample
Phase 2
Pilot study and revision of training Package
Phase 3
Pre-assessment and implementation of the first ten sessions of the revised training package.
Phase 4
Mid- assessment of the social and emotional skills.
Phase 5
Completion of the training for the sample
Phase 6
Final assessments of the social and emotional skills of the sample
QUALITATIVE PHASE
Phase 1
Selection of active parents for participation in the intervention and interview.
Phase 2
Formulation and validation of semi-structured interview guide, followed by conduction of the interviews.

Quantitative Phase 1

Permission to conduct the study was collected from 'The Com DEALL Trust'. It is an institute for early intervention for children with Autism Spectrum Disorders. Consent was sought from the parents who arrived at the institute for assessment or therapy. The suggestions given by the therapists of the institute and the observations made by the researcher provided directions towards possible participants for the study. These parents were approached with the details of the study and the intervention was explained with. Most parents who came to the institute with children who are 3 to 6

years of age were approached. The children of the parents who have consented positively were called for the screening assessments. The children were assessed with INCLEN Diagnostic Tool for autism to determine if they are in the Autism Spectrum Disorder, Seguin Form Board Test to determine the level of Intelligence and VABS-3 (Problem behaviours) to determine the level of Problem behaviours. Screening assessments were conducted for at least 48 children. Fourteen children were found suitable to be part of the study. These children were selected for the study.

Quantitative Phase 2

Two of the suitable participants, A & B, were selected for the pilot study. The hands-on activities from the 'let face it' curriculum were used for the pilot study, which is shared in the appendix. It was decided that a given session will be 60 minutes in duration. One of the parents is asked to be the active parent in the intervention, with whom, all details regarding the therapy sessions and follow-up activities were discussed. The active parents were also allowed to observe the therapy sessions. After the first ten sessions, the assessment was done to determine their current level of social and emotional skills. After this, the training sessions were continued, followed by final assessments.

Insights from the pilot study**:** the Intervention package must be modified and adapted. The participants were unable to sustain attention after the first 40 minutes of a given session. Participants were learning the skills at a slightly different speed. Intervention could be much more effective if the number of sessions is extended for some participants. Parents may be allowed to observe the sessions if they have a doubt about any activity given for weekend follow-up. They are also given a brief account of every session after every session.

Following the pilot study, the emotion recognition training package was modified and adapted after incorporating the expert opinions of five experts who have at least five years of experience with group intervention with young children with ASD. The revised emotion recognition training package was used for the main intervention, details of which are given in the appendix.

Quantitative Phase 3

After the pilot study, the selected participants were given emotion recognition training using the revised Emotion recognition training package. Twelve children who cleared the criteria through the screening tests and interviews were selected for the study. The participants were grouped into groups of two children for the training. There were six groups, with each group consisting of two members. The participants were paired based on their shared interests and relative similarity in the current level of social and emotional skills. This will be essential to help them build rapport and follow the schedule of each session in a relatively uniform manner. It is important to mention that the data from one of the groups had to be omitted due to certain difficulties that affected the reliability of their data. There was frequent absenteeism by one of the group members and the other group member was found to be attending a social skills training program elsewhere. In all the other groups, the participants had a good attendance and no one dropped out until completion of the intervention

Duration of the sessions: Every session was 45 minutes in duration

Structure of a given session: the first five minutes were spent on settling down and being comfortable. In the next 15 minutes, the activity/activities done in the previous session was revised. In the next 15 minutes, a new activity is introduced (if the participant is able to perform the previous activity efficiently). The last five minutes are utilized as bye-bye time. The parents are explained about the activities done and how their children have performed.

Schedule of the sessions: The researcher/therapist takes a 40-minute session every Tuesday and Thursday of the week, until completion of 20/30 sessions. The number of sessions is decided upon, based on the speed in which the participant is able to learn the skills focused. A given parent was expected to spend at least 20 minutes on both days of the weekend, with the participant, practicing the follow-up activities given by the researcher/therapist.

The Pattern for Parental involvement: One of the parents is asked to be the active parent in the intervention, with whom, all details regarding the therapy sessions and follow-up activities were discussed. The Intervention package was given to the parents of the participants. . The activities that would require a higher level of

professional training were avoided from the package. Based on the feedback shared by the active parent on the efficiency of their child's performance of the given activities, the weekend activity was further explained or was scheduled differently. The active parents were also allowed to observe the sessions, whenever they have a doubt in performing an activity at home. Only those activities that the children were able to perform satisfactorily during the therapy session, were suggested for weekend training.

Quantitative Phase 4

After ten sessions, re-assessment was done to determine their current level of social and emotional skills. The present level of acquisition of emotion recognition skills and the speed with which a given participant is acquiring the skills are discussed with their respective parents. Based on this discussion it was tentatively decided upon how many sessions are to follow after the assessment. It was tentatively decided that Group 2, Group 3 and Group 4 will attend 20 sessions, and Group 1 and Group 5 will attend 30 sessions.

Quantitative Phase 5

Following the assessment, the rest of the sessions of emotion recognition training were completed. The session-wise report of the training and parent follow-up are given in the appendix.

Quantitative Phase 6

After the intervention, final assessments were done to assess the current level of emotional skills and social skills.

Qualitative Phase 1

The parents of the respective participants were also included to be part of the study. Four of the active parents were selected to be part of the qualitative phase. These parents were expected to give their inputs concerning the qualitative assessments involved in the study.

Qualitative Phase 2

A semi-structured interview guide was prepared by the researcher. This guide was modified further based on the expert opinions and validation by three experts. The semi-structured interview guide was used to determine their perceptions of their involvement in the intervention and to tap their emotional experiences with their child through the course of the therapy. Interviews with the parents lasted for 30 – 45 minutes and were conducted and recorded after their positive consent

Data Analysis

The data were analyzed using SPSS-20. The normality of the sample was determined using the Shapiro-Wilk test. The standard scores of the social skills were compared using the Friedman test. The Growth scale value of the domains of social skills was compared using the Friedman test. The v scale scores and Age Equivalent values of the domains of social skills were compared using line and bar diagrams. The composite scores of the emotional skills were analyzed using the Friedman test.

The progressive improvements were analyzed for each participant, for each skill studied through the intervention, by calculating the percentage of improvement between Baseline and Time 1 with the percentage of improvement between Time 1 and Time 2. The generalization of social and emotional skills was also analyzed using percentages. As improvements were observed in problem behaviours of the participants, assessments were done to determine improvements in problem behaviours of the participants. Assessments were done for internalizing and externalizing problem behaviours. Parent's experiences and perceptions concerning their involvement in the intervention that were collected through the semi-structured interview, was analyzed using content analysis.

Ethical Considerations

The research was initiated only after receiving permission was granted by the concerned authorities. All the participants were selected after the informed consent from the participant's parents. The participants were carefully selected, after a thorough assessment. The intervention ensured maximum beneficence to the

participants involved. All the participants were treated with respect and were trained similarly. All the doubts and clarifications of the parents/caregivers of the participant were clarified promptly and patiently.

RESULTS

Test of Normality

Table 1

Normality distribution revealed in the study

	Shapiro-Wilk						
	Statistic	df	Sig.		Statistic	df	Sig
Interpersonal skills. Baseline	.969	10	.879	Social Skills. Baseline	.872	10	.107
Interpersonal skills. Time 1	.870	10	.100	Social Skills. Time 1	.966	10	.852
Interpersonal skills. Time 2	.935	10	.504	Social Skills. Time 2	.966	10	.848
Play & leisure skills. baseline	.841	10	.045	Emotional skills. Baseline	.862	10	.080
Play & leisure skills. Time 1	.892	10	.179	Emotional skills. Time 1	.911	10	.285
Play & leisure skills. Time 2	.938	10	.526	Emotional skills. Time 2	.902	10	.233
Coping skills. Baseline	.859	10	.075				
Coping skills. Time 1	.869	10	.097				
Coping skills. Time 2	.890	10	.172				

Progressive improvements in Emotional Skills

The internal consistency was assessed using cronbach's alpha. The cronbach's alpha was found to be 0.938 which suggests good internal consistency.

Table 2

Improvements in Emotional skills through the Intervention

Variable	N	Mean	Mean Rank	Chi square value
Emotional skills. Baseline	10	66.35	1.00	
Emotional skills. Time 1	10	74.76	2.00	20.000*
Emotional skills. Time 2	10	87.5	3.00	

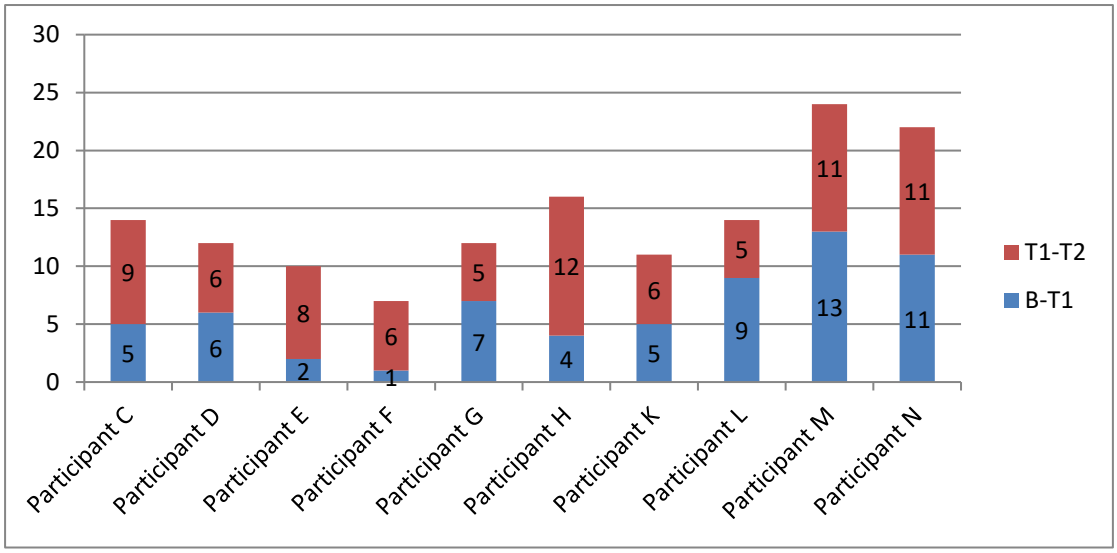
*p<.001

Kendall's W was found to be 1.00 which suggests a large effect size.

Comparison of the percentage of improvement in emotional skills across assessments

Figure 2

Percentage of improvement in emotional skills through the assessments



Progressive Improvements in Social Skills

Table 2

Improvements in social skills through the intervention

Variable	N	Mean	Mean rank	Chi square value
Social skills. Baseline	10	53.7	1.15	
Social skills. Time 1	10	57.5	1.85	17.897*
Social skills. Time 2	10	66.6	3.00	

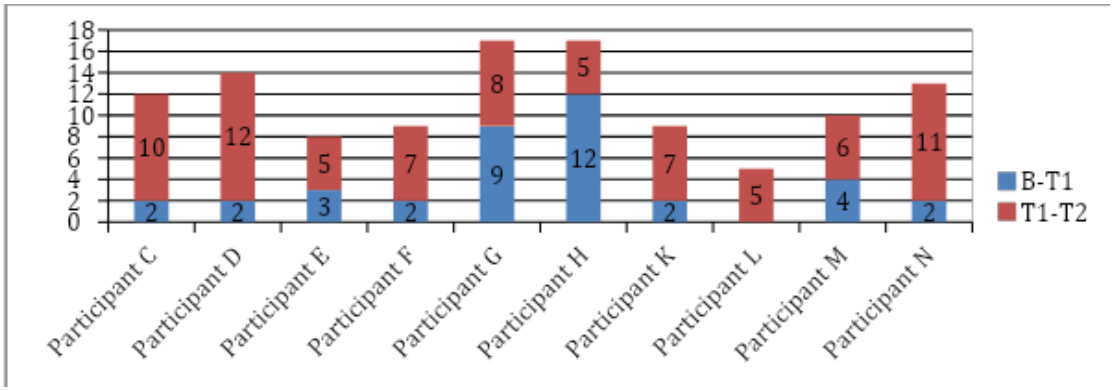
*p<.001

Kendall's W was found to be 0.895 which suggests a large effect size.

Comparison of the percentage of improvements in social skills across assessments

Figure 3

Percentage of improvement in social skills through the assessments



Progressive Improvements in the sub-domains of social skills

Progressive Improvements in Interpersonal Skills: The cronbach's alpha for Interpersonal skills domain was found to be 0.859, The cronbach's alpha for play & leisure skills domain was 0.915 and the cronbach's alpha for coping skills domain was 0.885.

Table 3

Improvements in Interpersonal Skills through the Intervention

Variable	N	Mean	Mean Rank	Chi square value
Interpersonal skills. baseline	10	65.7	1.05	
Interpersonal skills. Time 1	10	73.4	1.95	19.538*
Interpersonal skills. Time 2	10	85.6	3.00	

*p<.001

Kendall's W was found to be 0.977 which suggests a large effect size.

Figure 4

Progressive improvements in the rate of growth of interpersonal skills

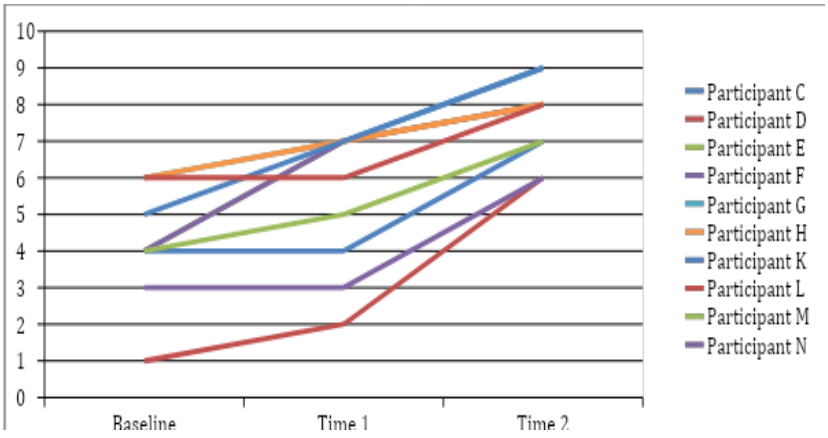


Figure 5

Progressive improvements in age equivalents of interpersonal skills

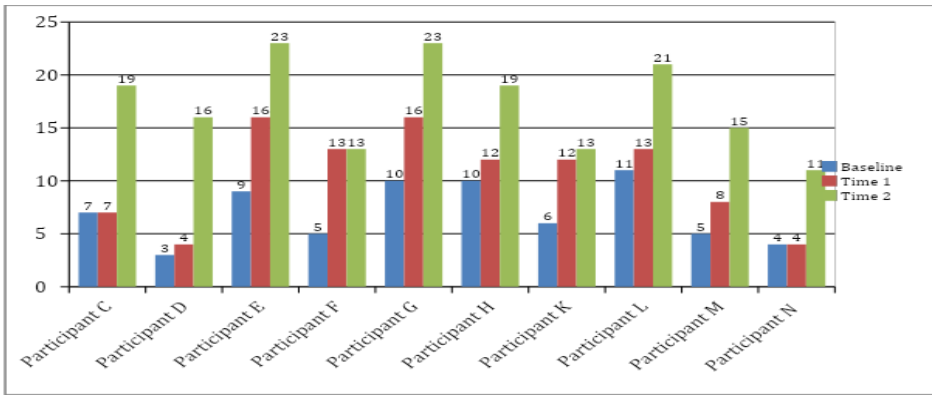
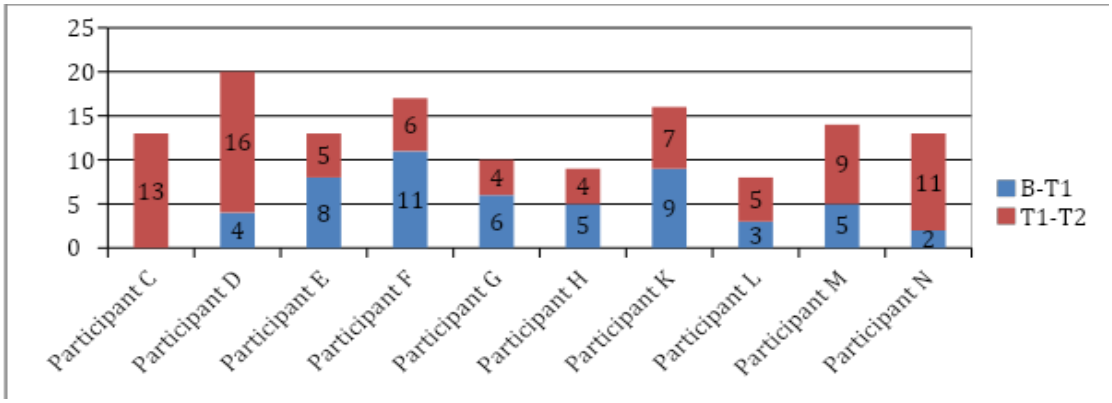


Figure 6

Percentage of improvement in interpersonal skills through the assessments



Progressive Improvements in Play & Leisure Skills

Table 4

Progressive improvements in Play & Leisure skills

Variable	N	Mean	Mean Rank	Chi square value
Play & Leisure skills. Baseline	10	72.6	1.15	
Play & Leisure skills. Time 1	10	76.6	1.85	18.865*
Play & Leisure skills. Time 2	10	85.2	3.00	

*p<.001

Kendall's W was found to be 0.943 which suggests a large effect size.

Figure 7

Progressive improvements in the rate of growth of play and leisure skills

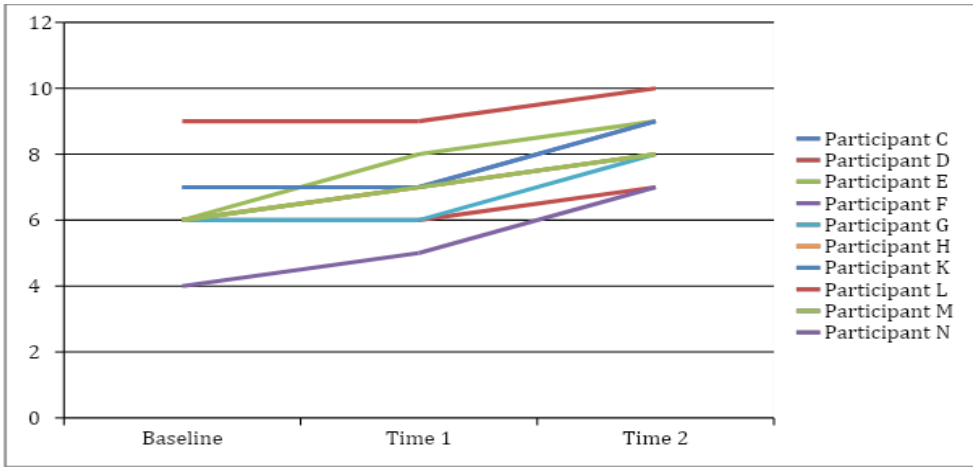


Figure 8

Progressive improvements in age equivalent of play & leisure skills

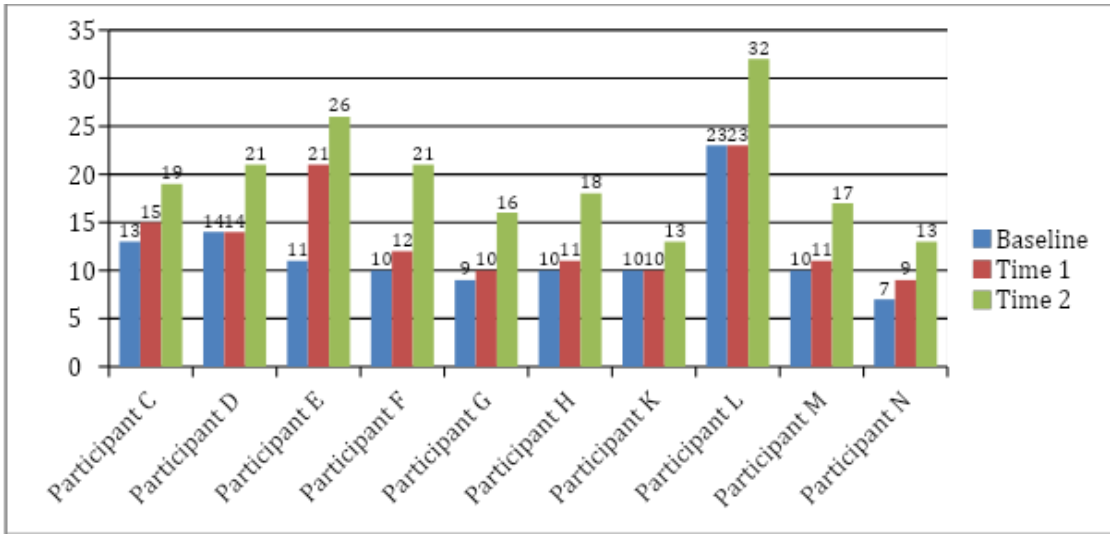
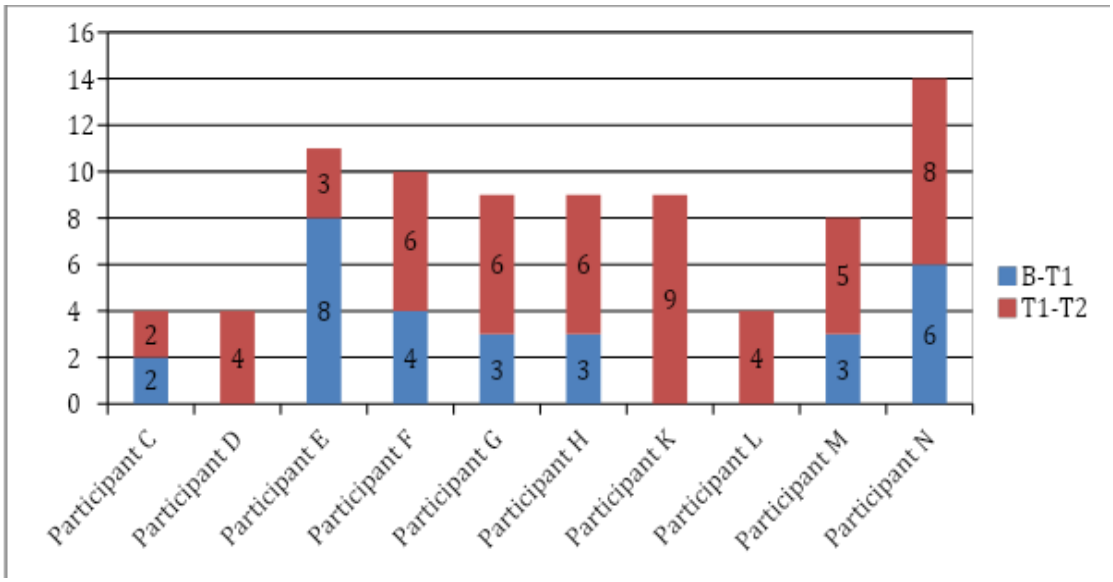


Figure 9

Percentage of improvements in play & leisure skills through the assessments



Progressive Improvements in Coping Skills

Table 5

Progressive improvements in Coping skills

Variable	N	Mean	Mean Rank	Chi square value
Coping skills. Baseline	10	46.2	1.20	
Coping skills. Time 1	10	47.3	1.80	18.667*
Coping skills. Time 2	10	52.5	3.00	

*p<.001

Kendall's W was found to be 0.933 which suggests a large effect size.

Figure 10

Progressive improvements in rate of growth in coping skills

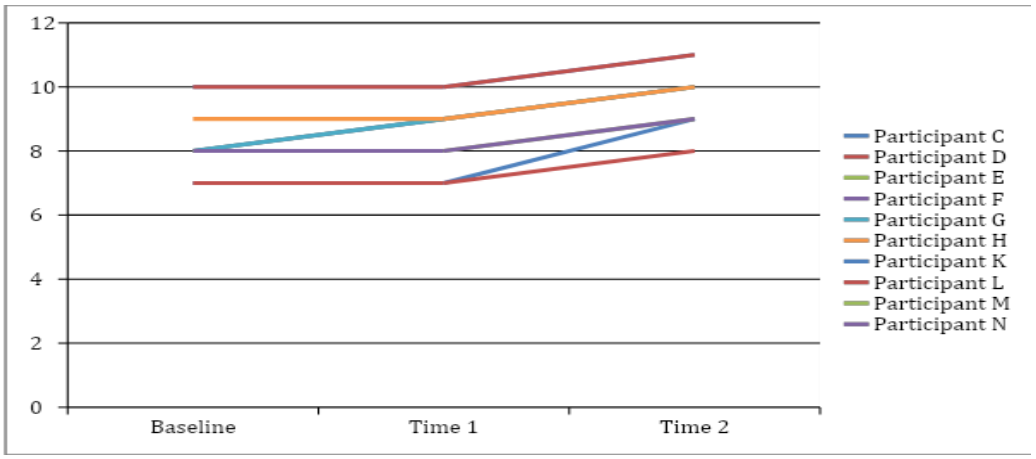


Figure 11

Progressive improvements in age equivalent of coping skills

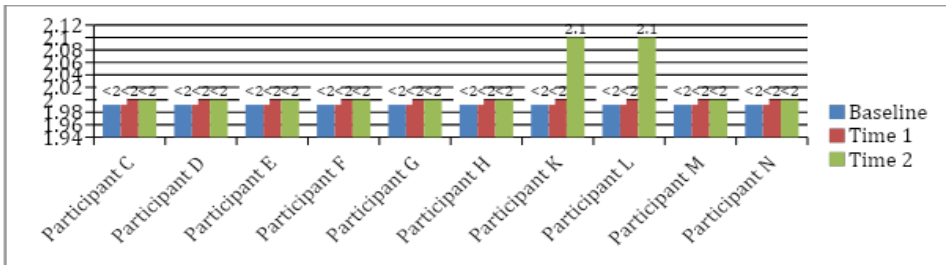
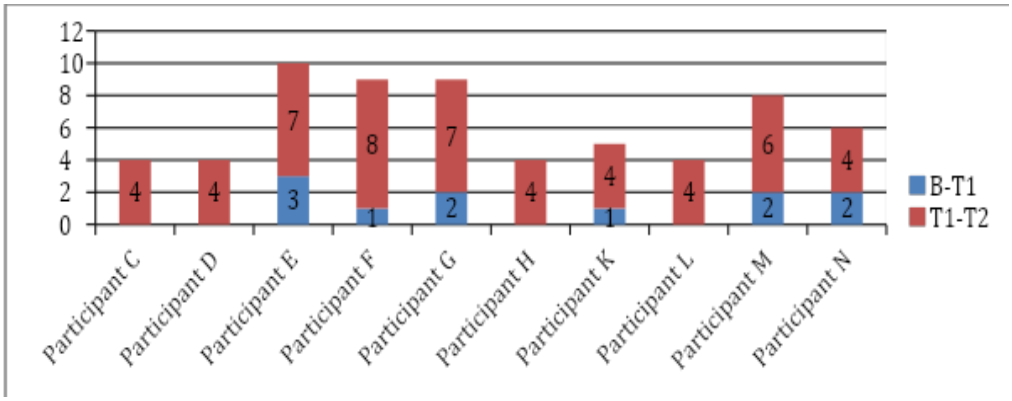


Figure 12

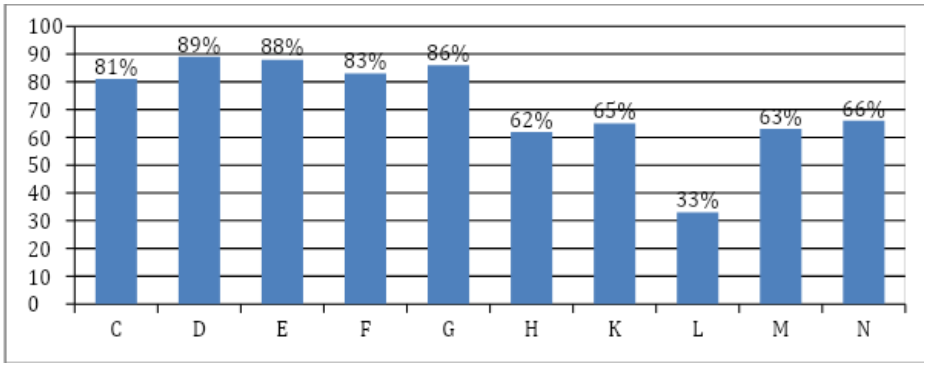
Percentage of improvements in coping skills through the assessments



Generalization of emotional skills through the intervention

Figure 13

Percentage analysis of the Generalization of Emotional skills



Generalization of social skills through the intervention

Figure 14

Percentage analysis of the Generalization of Social Skills

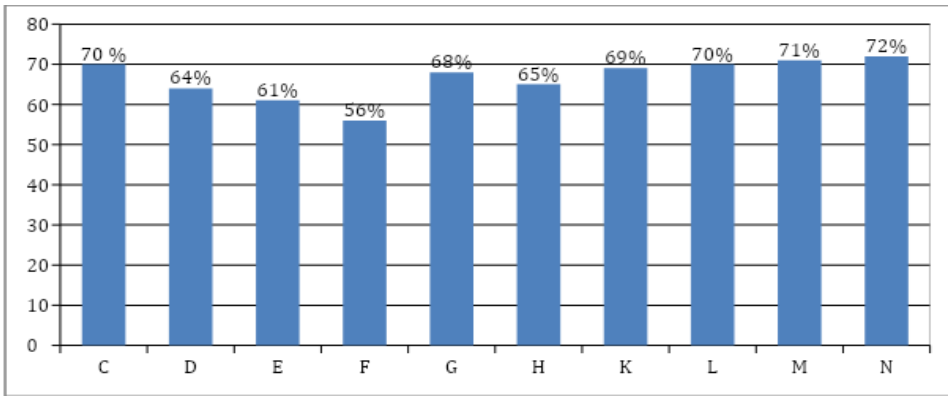
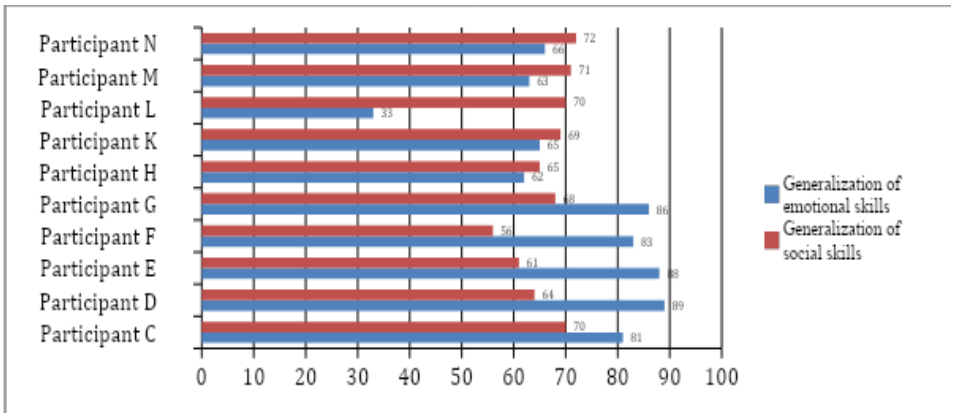


Figure 15

Comparison of generalization of social skills and emotional skills.



These differences may be the result of individual differences and differences in social exposure in each of these participants. The differences in stimulation by the parents also may have a significant impact on the differences in generalization of these participants.

Incidental finding due course of the intervention

It was observed that there was a definite decrease in severity of problem behaviours.

Figure 16

Progressive decrease in internalizing problem behaviours through the intervention

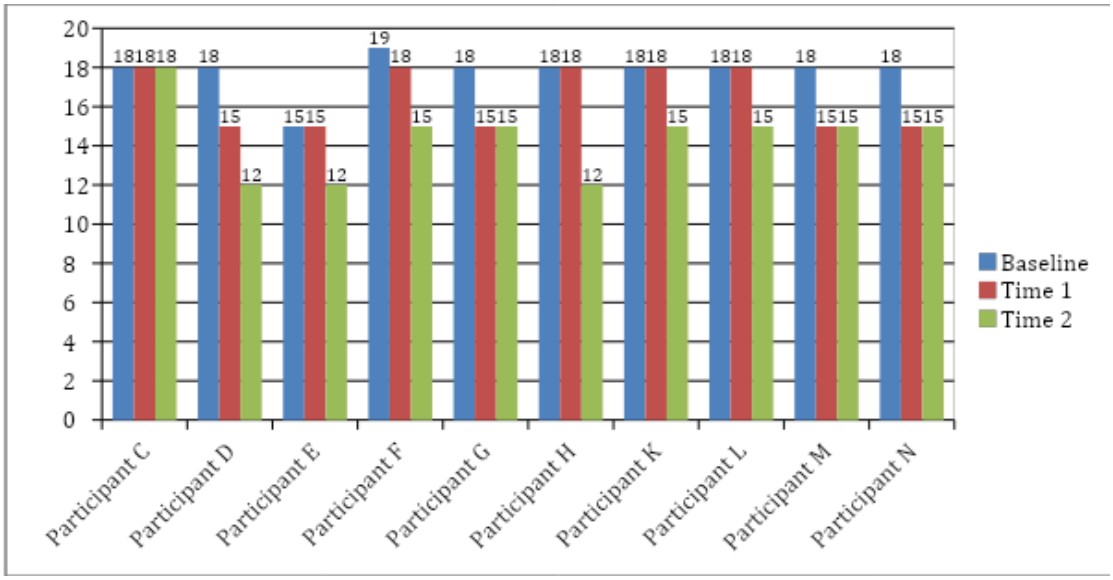
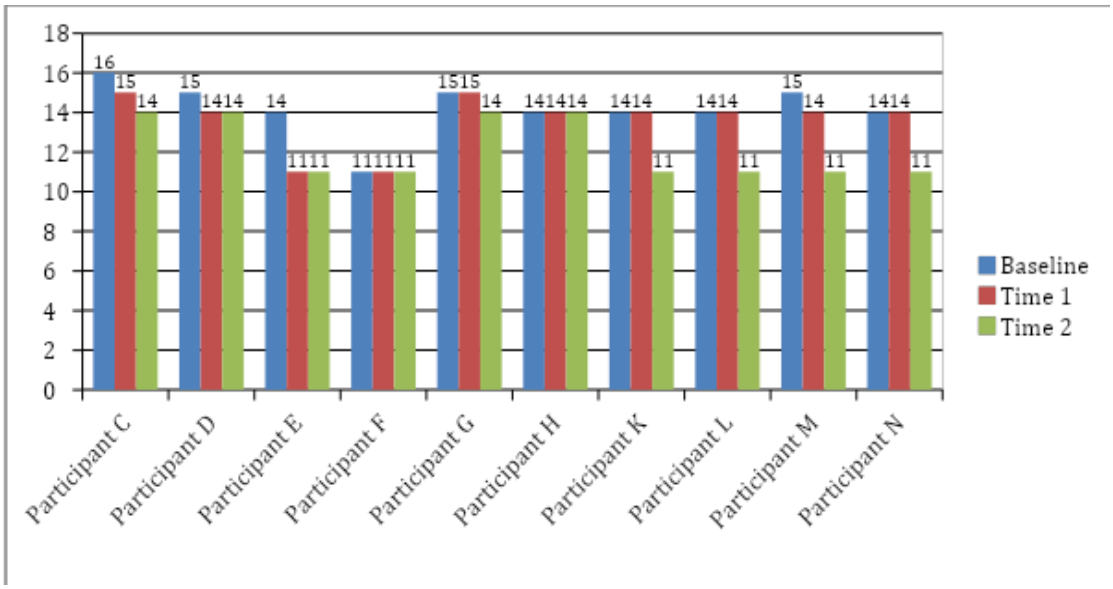


Figure 17

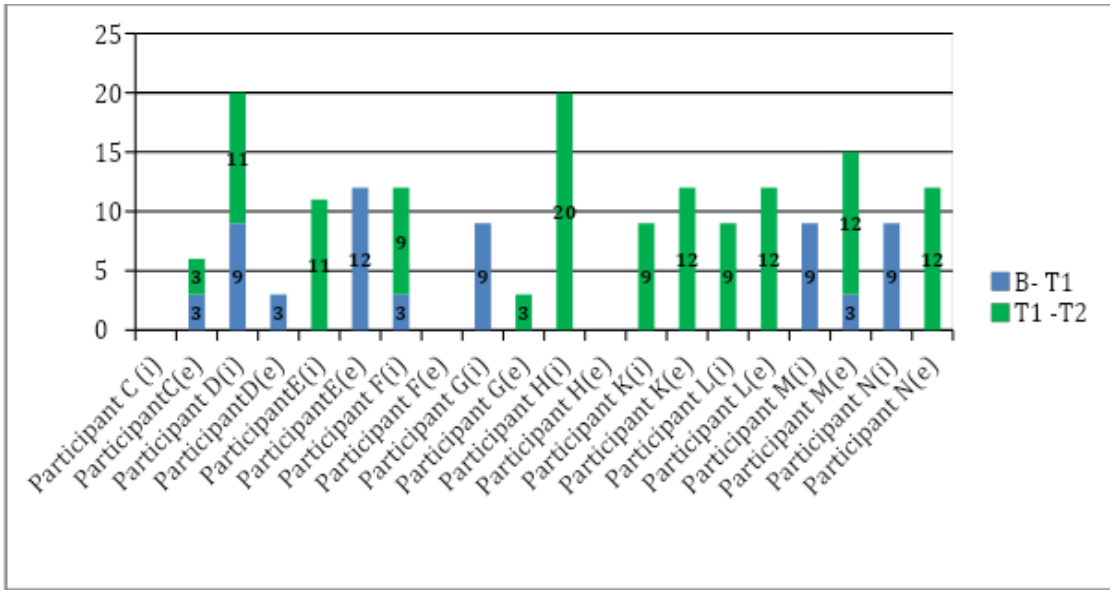
Progressive decrease in externalizing problem behaviours through the intervention



Comparison of the percentage of improvements in problem behaviours across the assessments

Figure 18

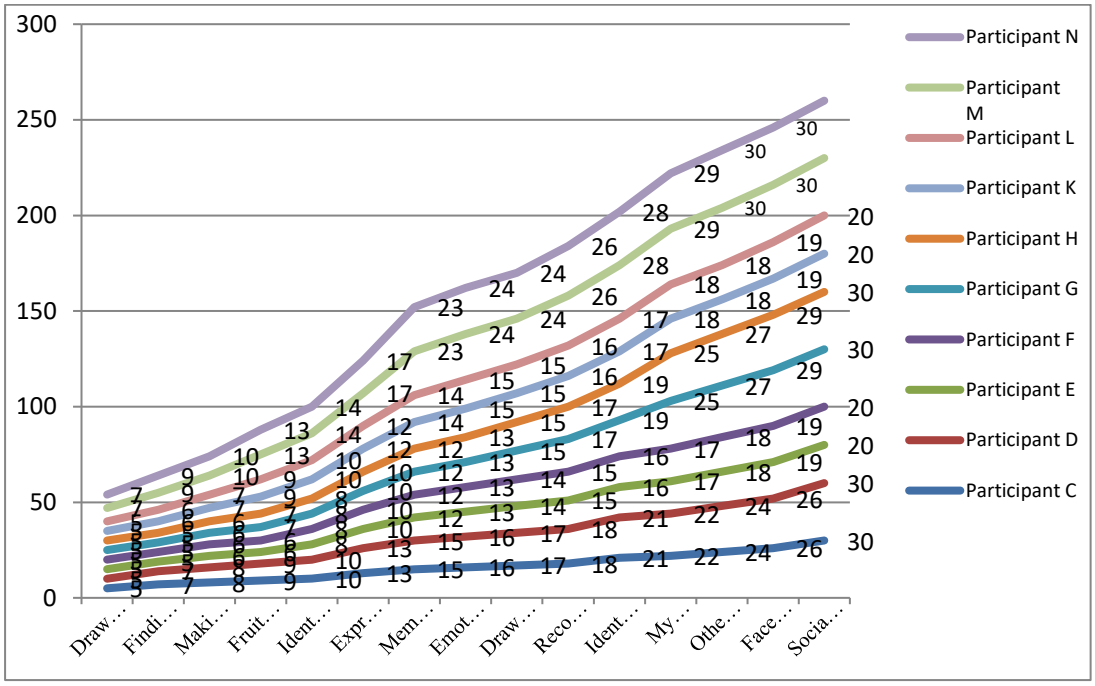
Percentage of improvements in problem behaviours through the assessments



Individual variations in skill acquisition through the intervention

Figure 19

Session-wise details of skill acquisition in participants



Most of the participants showed higher percentages of improvement in social and emotional skills in the second phase of the intervention. Problem behaviours, also, showed a greater percentage of improvement in the second phase of the intervention for most of the participants. This shows that the ability to recognize facial expression and identity along-with interpreting social meaning of facial cues, prove to be skills that are more important in bringing improvement in social and emotional skills in individuals with Autism spectrum disorders.

Supplementary findings revealed through Qualitative analysis

Theme: Skill Acquisition

Improvement in recognizing emotions

The participants are able to recognize the emotions of others, thereby helping others to understand them better. They were able to use these skills in different social scenarios. Parent C reported *"*...now he knows so many emotions also....before he was not aware of that". Parent A said "she is recognizing everything"

Progression in expression of emotions

The participants were able to express emotions that are appropriate with respect to the immediate social situation. Parent A reported “She is showing correct facial expression for a given social situation”. Parent B reported “I have seen a lot of improvements in him-emotional-wise..... If I open the homework note, he will definitely do the angry action, I have seen.”

Enhanced connectivity with others

Significant improvements were observed in the social interactional skills and imaginative skills, as observed by their parents in different social scenarios. Parent C explicitly stated “he got connectivity with others”

Theme: Skill Generalization

Expression of skill at home and outside

The skills were reported to be generalized across different people and different settings. Parent A reported “Parents emotions, friends’ emotions she is recognizing. My family, my husband’s family relatives and some family friends, she is recognizing.” Parent B reported “In other places also.....in school, they only called me and said, if they raise their voice, he will stop. Because they did not notice this even last year, nursery, same school only.”

Parental Involvement

As parents are allowed to involve in the intervention, they get hands-on training to help their child to acquire the targeted skills. Parent B reported ‘Before I have no idea about how I have to introduce these types of emotions. But you have introduced these materials na..... so I think that, OK, first I have to introduce picture-wise and then the next part .....’

Theme: Enhanced Parental efficiency and relationships

Improved understanding of child

Understanding a much realistic picture about their child's current level and possible future progress, gives the parents better prediction about the kind of approach they have to undertake for the child's progress. Parent D reported "I was under the impression that these are complex things and he'll not understand, but now I am just happy & I am just introducing him to all those things."

Meaningful interaction within family

The children are trying to express their feelings through expressions on their faces, gestures and by using words. They are able to generate appropriate empathic responses. Parent C reported "Earlier he doesn't know how to communicate with others. Now he understands". Parent B reported "……..he started pointing"

Better child management at home

Noticeable decrease in the number and frequency of problem behaviours helped the parents to manage the children better. Parent A reported "Sometimes behaviour issues are there, but not too much. When I say, 'Now I will show anger', she will be quiet, before she used to scream. Now when I show an angry face, she is very sad." Parents shared that they learned to make changes in their own behaviour, because they are able to predict the child's behaviour better now. Parent C said "I have to be patient. I scream less now with him. And his father.....it is a drastic change with him. He maintains his calm and temper very much".

Discussion

Effectiveness of emotion recognition training on Skill Acquisition

The results of the present study prove that emotion recognition has a significant impact on emotional skills and social skills in individuals with ASD. Qualitative analysis has also revealed results on similar lines.

The present research is in line with previous research that proves that better emotion recognition skills leads to better emotional skills (Wieckowski, Swain, Abbott & White, 2019). Emotional skills considered in the present study include

expressing own emotions, understanding others emotions, expressing empathy, expressing discomforts and the like. Though emotion recognition may be considered as another emotional skill, this skill receives a higher emphasis when we consider intervention for the population with Autism spectrum disorders. In the present study, emotion recognition is defined as the ability to perceive and interpret facial emotions (Tanaka, et al., 2012). Apart from other difficulties with emotional skills, recognizing emotions from other faces is found to be especially difficult for this population, as these individuals focus more on the individual features of the face, rather than on the face as a whole (López, Donnelly, Hadwin & Leekam, 2004). This often leads to poor emotion processing in this population (Hill, Berthoz & Frith, 2004). Children with ASD also have difficulty in recognizing how different expressions of particular emotions are associated with each other, which in turn limits their ability to understand the emotional states of other people (Hobson, 1986). Therefore, improving emotion recognition abilities are especially important to help the individual in socialization. The difficulties with emotion recognition in individuals with ASD is mostly attributed to their weak central coherence, which limits their focus to the individual features of the face, rather than the whole face at a time (López, Donnelly, Hadwin & Leekam, 2004), and this leads to inadequate emotion recognition and thereby leads to unexpected social interactions.

The present study utilized an intervention package that trained the participants to focus on all areas of the face, and in pictures to help them learn to recognize emotions from the face. The intervention also followed a hierarchical pattern, which allowed the participants to improve their coherence of emotional faces in systematic manner. The present study affirms with previous researches that suggest that the difficulties with social skills can be due to difficulties with emotion recognition ability (Trevisan & Birmingham, 2016, Corbett et al, 2014).

The present study reveals that emotion recognition skill has a significant influence on acquisition of social skills. Difficulties with the understanding of others emotional states (Fan et al, 2014) leads to behaviours that may result in social exclusion of these individuals (van Roekel et al, 2010). This may affect the social motivation of the individuals with ASD, which in turn has proved to influence facial emotion recognition skills (Garman et al, 2016). The participants of the study were young children (3 to 6 years of age), whose brain plasticity is expected to be higher than

those children who are older. The intervention trained the participants to memorize emotion smileys followed by pictures of faces showing different emotions and real faces showing different emotional facial expressions. Acquisition of these skills is expected to have played an important role in causing improvements in the participants of the study. In the present study, the participants were trained to identify emotions from others face within their social context and plan appropriate actions based on their emotion. This helped them in interpreting social environment based on the emotional reactions from others. This facilitated better family interactions and allowed them to be more likeable when compared to an emotionally ignorant individual. The influence of emotion recognition was also studied on the three sub-domains of socialization, namely interpersonal relationships, Play and Leisure skills and Coping skills. Results revealed systematic improvements in all these sub-domains, with the improvement in emotion recognition ability

The study is in-line with previous research that shows that improvement in emotional skills aid in improving personal and work relationships (Salovey & Grewal, 2005). Parents reported that the participants spent more time looking at the other person's face to try to decipher their emotion and thereby decide his response to them. This ability played a very important role in improving his emotional and social interactions within his/her environments. A higher understanding about other's emotions enables them to understand the emotional suffering of others (Neumann, Chan, Wang and Boyle, 2016), which thereby prevents them from creating distress to others (Buck, Hester, Penn and Gray, 2017).The present study executed a group intervention with two participants in each group. Participants were encouraged to perform the activities in the intervention package, in interaction with the other participant and the therapist. These factors are expected to have played an important role in improving interpersonal skills. Developing empathetic responses contributes towards better pro-social behaviours, inhibits aggressive behaviours and improves the quality of relationships (Eisenburg, Eggum & Giunta, 2010).

In the present study, empathetic responses were encouraged by training the children to anticipate the emotions in others based on the situational cues. This was accomplished through relevant pictures and situation cards. Improvements were also reported with respect to imaginative skills. Improvement in imaginative skills, is important to anticipate the emotions of others for a particular action (Hickox, 2002)

which thereby affects their social communicative skills (Eycke & Muller, 2015). The analysis of age equivalent scores of the participants revealed a steady pace of improvement with interpersonal skills. This is a finding that requires a higher emphasis, as this indicates that emotion recognition training helps the participants to be closer to their peers concerning interpersonal relationships. It also emphasises the importance of including emotion recognition training into any social communication intervention, designed for children with ASD.

Improvements in emotion recognition skill can significantly improve the play & leisure skills in individuals with ASD. Individuals with ASD are disadvantaged with basic emotional skills that prevent them from social engagements (Corbett et al, 2010) that are mandatory during play. Knowledge about other emotions is very important for interactive peer play (Matheison & Bannerjee, 2011). The improvements in age equivalents also show an increasing pattern. The improvements indicated are positive and suggest that the intervention was very useful to the participants and that it helped them to come closer to playing with their peers.

The results also indicate that improvements in emotion recognition have facilitated improvements with coping skills. Individuals with ASD have ineffective coping strategies (Jahromi, Meek and Ober-Reynolds, 2012) that have detrimental effects on the individual with ASD and his/her social inclusion (Mazzone & Camodeca, 2016). Previous studies show that emotion has a significant role in developing good coping skills (Zimmer-Gembeck, Petegem, Skinner, 2016; Downey et al 2010). The present study is in line with these studies and has shown that improvement in emotion recognition brings significant changes in coping skills. This is a very useful finding as it gives us further directions on developing novel intervention procedures that would help in the improvement of coping skills. Previous research proves that coping skills contribute to a better quality of life (Caponigro, Moran, Kring and Moskowitz, 2014) and leads to better academic success as the child grows (Arsenio & Loria, 2014).

However, the age equivalent scores of the participants did not show a steep change through the intervention. This may be because of the peculiarities of the assessment tool. Further research may help one understand these differences further. Parent involvement in therapy has also proved to bring significant changes in

individuals with ASD (Boyd et at, 2011). Parent's emotion-related beliefs, behaviours and skills have a significant role in their developing child's emotion recognition skills (Castro, Halberstadt, Lozada & Craig, 2015). As the child was able to understand others emotions, meaningful social interactions were becoming possible in the family. The child improved in showing empathy and reacting appropriately to a given situation. As the child learnt to express his emotions better, he/she was also able to communicate better in the family. The improvements helped the parents to understand their child and the nature of the child's condition better, which helped them to bring a balance in their expectations and make realistic goals for their child. A realistic picture of their child's growth helps the parents to enhance their efficacy and confidence in their skills (Gibson, 2013), which ensures the optimal level of training for the child which thereby ensures optimal improvement in the child.

Effectiveness of emotion recognition training on Skill Generalization

Concerning skill generalization, the study has revealed a satisfactory level for the generalization of social and emotional skills attained. In the present study, the training within sessions was coupled with psycho-education and follow up training suggestions for the parents. Qualitative analysis reveals that most parents reported they felt they were getting better equipped to train their child and this helped them to train their child better. As they were better trained they were able to follow up with the activities at home and also support their children in other environments. This in turn has contributed to better generalization in the skills attained, as observed in the percentage analysis also. Constant presence and corrective modelling have been found to be very successful in helping children with ASD to develop skills, generalize skills and maintain those skills (Carter, Steinbrenner & Hall, 2019). Previous studies have shown that efficiency in the generalization of emotional skills can be achieved through a very intense and rigorous training routine (Wartan, 2019). The present study has proved that a less intense training routine can also bring similar results.

Though all the participants showed a systematic increase in skills through the intervention, each participant showed individual differences concerning acquisition and generalization of skills. This is in line with previous research that suggests that individual differences are inevitable in any intervention planned for individuals with ASD (Trembath & Vivanti, 2014). Several factors may contribute to these individual

differences. Parents' beliefs, behaviours, and skills together are found to contribute for 37% of the variance in child emotion recognition ability, clearly indicating the role of parental emotion socialization in child emotional development (Castro, Halberstadt, Lozada & Craig, 2015). Parenting stress is found to mediate the relationship between child behaviour problems and lowered parenting self-efficacy, leading to depression (Rezendez & Scarpa, 2011).

Older maternal age and higher maternal education are found to predict better gains with early intervention for ASD (Itzchak & Zachor, 2011). Concerning cultural factors that induce individual differences the following factors are found to affect intervention for ASD (Bernier, Mao & Yen, 2010). Macro-level factors, such as the availability of services, societal acceptance of the disorder, and the existence of national- and/or state-funded treatment options. Micro-level factors within families, such as individual response and acceptance of the diagnosis, quality of diagnostic and intervention services provided. In the present study, the sample size did not allow the analysis of these factors to conclusively identify the specific reasons that caused these individual differences across the participants in the study. However, the pattern of improvement concerning the skills focused has remained the same for all participants, especially with respect to the rate of improvement and age equivalents. Therefore the finding proves itself to be reliable evidence for the hypotheses of the study.

Analysis of the results of the assessments at Time 1 and Time 2, shows that the ability to recognize facial expression and identity along-with interpreting the social meaning of facial cues, prove to be skills that are more important in bringing improvement in social and emotional skills in individuals with Autism spectrum disorders. This is in-line with previous studies that emphasise that recognizing facial expression and social meaning of facial cues is the most important emotion recognition skills that enable better socialization in children with ASD (Berenguer et al, 2018, Klin, 2000).

Incidental finding revealed through the intervention

These improvements themselves have proved to show its impact by reducing the problem behaviours (Jung & Sainato, 2013). The results show that internalizing and externalizing problem behaviours show a decreasing pattern due course of the intervention. Though problem behaviours were not focused upon for the intervention,

the reduction in problem behaviours was observed throughout the intervention, and therefore was recorded periodically. Though we are not clear whether there was a direct or indirect influence on problem behaviours in the present study, it is assumed that a combination of both might have contributed to bringing improvement in problem behaviours in the participants. Studies prove that improving emotion recognition skills significantly leads to improvements in social skills, which thereby helps to reduce problem behaviours (Bal, 2011; Gal-Szabo, Spinrad, Eisenberg & Sulik, 2017;). Other studies suggest a direct influence of emotion recognition skills on problem behaviours (Bedford et al, 2017; Chronaki et al, 2015).

The study proves that this intervention is a time and cost-efficient intervention strategy to help families with individuals with ASD to aid in the reduction of problem behaviours. Reduced number of problem behaviours helped the parents to manage these better and create a positive environment in the family. The intervention equipped parents to adopt efficient methods in the management of a situation at home. This is in support of previous studies which suggest that reduction in problem behaviours have a direct influence on the parent's Quality of Life (Baghdadli, Pry, Michelon & Rattaz, 2014). Better adaptive skills in their children also contribute to reduced parenting stress in the family (Hall & Graff, 2011).

Implications of the study

The intervention is very effective for young children with ASD who are not intellectually disabled and do not have clinically significant problem behaviours. The course of the intervention is sufficient to help the children acquire and generalize the skills. Though there are individual differences in the nature of impact emotion recognition training may have on each participant, all participants improved with their skills and their generalization. Parental involvement is very essential, especially when we consider the generalization of the skills. It has an impact on parents' stress level and expectations which thereby contributes to the betterment of the child. The intervention must be an essential part of any intervention that is aimed at improving the social communication of the children with ASD. The study also proves its feasibility and practicability in the Indian setting. Therefore the study may be replicated in the Indian setting to benefit individuals who are in resource-poor settings and do not have access to costly or technology-mediated intervention practices.

Considering the intervention was useful in reducing problem behaviours, this intervention can also play a major role in any behaviour management program designed for children with ASD.

Limitations of the study

Several factors led to reduced sample size in the present study. This has probably affected the generalizability of the study. Therefore the replication of the study may be required to prove its generalizability to the wider population. Reduced sample size prevented the accumulation of sufficient data that allowed the comparison between other demographic variables of the participants. This limits our understanding of which demographic features may have influenced the individual differences in the acquisition and generalization of the skills attained through the intervention. The maintenance of the skills attained could not be ascertained. This was because the participants enrolled in other therapy programs as the intervention concluded. This could not be blocked, as it would be unethical to restrict a child with ASD from any form of therapy that is aimed at his/her development. This limits our understanding of how these skills were maintained in the following months for the participants. Another major drawback was the lack of a control group.

Directions for future research

Future research may be conducted with a larger sample size to ensure generalizability and analyze possible differences in results based on different demographic variables. Future research may also include more number of therapists to deliver the therapy to the participants, to ensure sufficient replicability and validity of the results obtained. The impact of emotion recognition on other domains of development, such as communication and imaginative skills may be studied in greater detail. Future research must also focus on how parental involvement in ASD intervention contributes to their family environment and quality of life in general.

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APPENDICES

APPENDIX A:

CONFERENCE PRESENTATIONS AND PUBLICATIONS

- Presented a paper on " Impact of Overprotectiveness on development of Emotional Intelligence" at the National Conference conducted on School Mental Health by Amrita Institute of Medical Sciences, Ernakulam (2019)
- Presented a paper on "Evaluation of the efficacy of social skill based treatments for Autism Spectrum Disorder in India: A systematic review" at the National Conference on child Psychology by T John College, Bangalore (2018)

- Ongoing work on Publication of the paper 'Interventions for the improvement of social skills in Autism spectrum disorder in India: A systematic review' in the 'Journal of Indian Association for Child and Adolescent Mental health' [Peer review is being completed]

- Ongoing work on Publication of the paper 'Impact of parental overprotection on emotional intelligence in young adults' [Peer review was completed by 'Indian Journal of Social Psychiatry' and article has been rejected. Article is being modified further for its improvement]

- Ongoing work on Publication of the paper 'Quality Of Life among Caregivers of children with Autism Spectrum Disorder' in the 'Journal of social work education and practice' [Editor's review is in progress]

- Ongoing work on Publication of the paper 'Parental involvement in intervention for autism spectrum disorder: experiences of rehabilitation professionals' [Validation of tool in progress]

- Ongoing work on chapter to book entitled 'Intervention manual for the management of Problem behaviours in young children' by The ComDEALL Trust

- Co-authored the book named 'marakkathirikkaan (memory)' that was published by the DC Publications (2017)

APPENDIX B:

ETHICAL CLEARANCE FROM CHRIST UNIVERSITY

CHRIST
(DEEMED TO BE UNIVERSITY)
BANGALORE - INDIA

CENTRE FOR RESEARCH

CU:RCEC/00020/10/18

25 OCTOBER 2018

Ms. AMMU ELIZABETH ALEXANDER
Reg No. :1750078,
Department of PSYCHOLOGY
CHRIST (Deemed to be University), Bengaluru

Sub: Ethical Approval of the Study Titled "Effectiveness of Emotion Recognition Training on Social and Emotional Skills in Children with Autism Spectrum Disorder".

The Institutional Ethics committee has reviewed your application for ethical clearance for the Study titled "Effectiveness of Emotion Recognition Training on Social and Emotional Skills in Children with Autism Spectrum Disorder".

The committee has cleared your proposal for data collection after assessing the ethical aspects.

Sincerely,

T.S.Sam

Dr Tony Sam George
(Member Secretary to Ethics Committee)
Additional Director
Center for Research
CHRIST (Deemed to be University), Bengaluru

APPENDIX C:

Ethical Clearance From ComDEALL

(An Early Intervention Institute For Children With Autism Spectrum Disorders)

The Com DEALL Trust
Early Intervention Program for Children with Autism spectrum Disorders

28-11-2018

To,

Ms. Ammu Elizabeth Alexander
Sr. Psychologist
The Com DEALL Trust
Bangalore

Dear Ms. Ammu Elizabeth,

This is in reference to your email dated 30th October 2018 requesting permission to conduct your research on *Effectiveness of emotion recognition training on social and emotional skills in children with Autism Spectrum Disorder* at The Com DEALL Trust.

Our Ethics Committee has reviewed your application and given its approval for data collection. Please do ensure that ICF is translated into regional language, if the parents are not fluent in English.

Due credit should also be given to The Com DEALL Trust and any of its employees who facilitate you in your work, both in the thesis and subsequent publications.

Best Wishes,

Dr. Prathibha Karanth
Director and Managing Trustee

H.O. No. 224, 6th A Main, II Block, HRBR Layout, Bangalore-560 043, Karnataka, India.
Tel: 080-2580 0826/27/28 Mobile : 94803 34809 Email : communicationdeall@gmail.com
Website : www.communicationdeall.com

APPENDIX D:

Informed Assent Form

Informed Assent

TITLE OF STUDY

Effectiveness of emotion recognition training on social and emotional skills of children with Autism Spectrum Disorders.

PRINCIPAL INVESTIGATOR

Name: Ammu Elizabeth Alexander
Supervisor: Dr. Padmakumari. P
Department: Psychology, Christ University
Contact details:

PURPOSE OF STUDY

You are being asked to take part in a research study. Before you decide to participate in this study, it is important that you understand why the research is being done and what it will involve. Please read the following information carefully. Please ask the researcher if there is anything that is not clear or if you need more information.

The purpose of this study is to find out if an intervention for emotion recognition can bring a significant difference in the socialization and emotional skills of children at risk of ASD. This will help us contribute further to understanding ASD and develop a new training module to improve socializing abilities of the children with ASD with better efficiency. If therapy delivered is of greater effectiveness at the preschool age, especially with regard to socialization, we can introduce them to mainstream education and integrate them better into the society.

STUDY PROCEDURES

As the first step to the study, the participant will be assessed on his/her social and emotional skills. His Intelligence Quotient and Behavioral anomalies (if any) is also assessed to determine if he will be suitable for the program. After this each participant will be given 20 sessions of Emotion recognition training. Each session will be 45 minutes in duration. The participant will be attending these sessions along with another participant, who is similar in skills as compared to your child. First two sessions will be used to build rapport with the child. The parents are suggested home training procedures that can be practiced at home too.

The parents will be called for an interview with the researcher to discuss about their observations of the participant, in the beginning and end of the study. To collect details on progressive improvement of the child, an assessment will be conducted after 10 sessions of intervention. After 20 sessions are completed, reassessment will be done to determine his/her current level on social and emotional skills. The interviews will be audio-recorded. These audios will be destroyed as soon as the research is completed. Any data collected as part of the research will be destroyed as soon as the research is completed.

RISKS

The training will focus only on Emotion recognition and not on any other aspect, as this is the core of the study. Therefore, **there are no risks involved in participating for the study**

BENEFITS

The entire study is **free of cost**. The parents gain a **deeper understanding** of the child's emotional domain and its possible impact on child's socialization

CONFIDENTIALITY

The details of the participant will be anonymous. Every effort will be made by the researcher to preserve your confidentiality including the following:

- Assigning code names/numbers for participants that will be used on all research notes and documents
- Keeping notes, interview transcriptions, and any other identifying participant information in a locked cabinet in the personal possession of the researcher.

Participant data will be kept confidential except in cases where the researcher is legally obligated to report specific incidents. These incidents include, but may not be limited to, incidents of abuse and suicide risk.

CONTACT INFORMATION

If you have questions at any time about this study, or you experience adverse effects as the result of participating in this study, you may contact the researcher whose contact information is provided on the first page.

VOLUNTARY PARTICIPATION

Your participation in this study is voluntary. It is up to you to decide whether or not to take part in this study. If you decide to take part in this study, you will be asked to sign a consent form. After you sign the consent form, you are still free to withdraw at any time and without giving a reason. Withdrawing from this study will not affect the relationship you have, if any, with the researcher. If you withdraw from the study before data collection is completed, your data will be returned to you or destroyed.

CONSENT

I have read and I understand the provided information and have had the opportunity to ask questions. I understand that my decision to let my son/daughter participate for this study is voluntary and that I am free to withdraw at any time, without giving a reason. I understand that I will be given a copy of this consent form. I voluntarily agree to be part in this study.

Signature of the Parent _____ Date _____
(Name of Parent)
Investigator's signature _____ Date _____

APPENDIX E: SEMI-STRUCTURED INTERVIEW GUIDE

Parents Perceptions and Experiences

1. How would you evaluate your involvement in the intervention with regard to betterment of your child?
   [Improvement/ stagnation/ deterioration]
2. What is your opinion on the generalization of skills attained?
   [Better generalized due to involvement/ No changes/ deterioration due to involvement]
3. How do you evaluate changes in your experiences with the child as a result of your involvement in the intervention?
   [Understanding of others emotions/ adaptation/better communication]
4. Based on your participation in the research, what is your opinion on parental involvement in intervention?
5. How did your involvement affect your understanding of your child?
   [Understanding of the disorder/ nature of disorder/ learning on how to manage his behaviours/ learning on how to teach different concepts]

APPENDIX F: BRIEF OVERVIEW OF THE INTERVENTION PACKAGE USED FOR THE PILOT STUDY

Goal	Sub-goals	Activity
Attending to faces and understanding facial structure	Ability to readily discriminate faces from other objects and stimuli in the environment.	Fishing for faces
	To teach how facial features form a spatial arrangement.	Picasso
		Arcimboldo
	To facilitate child's understanding of the configuration of facial features	Mr. &Mrs. Potato head
		Create a Face
		Faces in all places
Recognizing facial identity and expression	To discriminate between 6 basic facial expressions	Memory
		Making expressions
	Promote skills in facial identity	CSI-Wanted
	To discriminate between facial expressions	Face Bingo
	To teach identity recognition and discriminate facial expressions	Trading faces
	To identify specific elements that make a facial expression	Drawing emotions
	Recognizing and caegorizing faces based on identities	People categories
Interpreting the social meaning of facial cues	To teach how facial expressions are used in everyday social situations.	Spinner faces
	To use cues in the environment to infer significance of social situations.	Taking Perspectives

APPENDIX G: SESSION-WISE RECORD OF INTERVENTION GIVEN IN THE PILOT STUDY AND INFERENCES

Sessions	A & B	Insights and comments
1	Building rapport: Fixing puzzles, Action song, Ball game, Circle games, Clay play	First session was as expected. But it was very obvious that the children could not maintain their attention after 40 minutes.
2	Building rapport: Colouring on shapes, Building tower, Aiming at target; Colouring on shapes, Musical instruments	Session was as expected. Children were able to build rapport with each other and the therapist.
3	Hello time, Rapport activities, Fishing for faces, Bye	Session started with rapport building activities to maintain the rapport. Comments: Fishing for faces was very difficult for the children to perform. So first the therapist drew a face and explained what a face is. After this, the participants were asked to draw a face. A face was clearly explained to the kids. Then, a single face and a single non-face card were kept in front of the participants. They were helped to select the face card and put into the face box. Insights: Fishing for faces must be simplified and practiced after teaching the participants what a face is. The faces are very unfamiliar to the participants. These may need adaptation.
4	Hello time, Rapport activities, Fishing for faces, Picasso, Bye	The therapist would draw and explain a face by drawing it to them. The participants were asked to draw a face after this. After this one face and 2 non-face cards were kept in front of the participants. Children were asked to sort and put the appropriate boxes for face and non-face card boxes. Picasso – children were unable to choose two faces. The therapist chose two faces. The children were asked to choose facial parts to make a face, as expected for the activity. Some of the faces were heavily unfamiliar to the children. Therefore, these faces were used more often
5	Hello time, Fishing for faces, Picasso, Arcimboldo, Bye	The participants were reminded of what a face is. The participants were asked to draw a face after this. After this more number of face and non-face cards was used. The participants were asked to sort them into face and non-face card boxes. Picasso was played as before. Arcimboldo was played as expected. Insights: There could be more levels to these games, which could help the children learn skills better.
6	Hello time, Fishing for faces Picasso, Arcimboldo, Mr & Mrs Potato head, Bye	The participants were given the face and non-face cards and asked to find face cards. The selected face cards were asked to put into face box. Picasso and Arcimboldo was played as before. Mr and Mrs Potato head was played as expected. Insights: There could be more levels to these games, which could help children learn better. Mr & Mrs Potato head was very unfamiliar to the participants. This game may need adaptation.
7	Hello time, Arcimboldo, Mr & Mrs Potato head, Create a Face, Bye	Arcimboldo and Mr & Mrs Potato head was played as before. 'Create a face' was played as expected. Insights: 'Create a face' must be played at home with more items. The participants had difficulty with the level of creativity involved. The activity may be simplified for better learning.
8	Hello time, Arcimboldo, Mr & Mrs Potato head, Create a face, Faces in All places, Bye	All activities were played as expected.

9	Hello time, Mr & Mrs Potato head, Create a face, Faces in all places, Memory, Bye	Memory game could not be played as expected. The children were not able to understand the game. It was simplified. Some cards were inverted and kept in front of the participants. They were asked to tell the names of the cards that was inverted. Insights: Memory game may be simplified with more levels.
10	Hello time, Faces in all places, Memory, Making expressions, Bye	Memory game was taken to the next level. Three cards were shown and inverted, after wich one was removed. The participant was asked to remember and tell which one was removed. Making expressions was played as expected. Insights: Faces in the making expressions activity were very unfamiliar. The pictures may need adaptation.
11	Hello time, Faces in all places Memory, Making expressions CSI: Wanted, Bye	Memory game was taken to the next level. Some cards were shown and inverted. The children were demanded of one card. They were to remember the where the card was placed and pick up accordingly. Insights: CSI Wanted was very difficult for the participants. This activity may be modified to make it more simple and useful for the participants.
12	Hello time, Faces in all places Memory, Making expressions Face Bingo, Bye	Memory game was again taken to the next level. Some cards were inverted. The participants were asked to pick up the other pair, after the therapist has picked a card. The participants could not understand or do the face bingo activity. Insights: The activity Face bingo does not seem to be appropriate for this population. The same goal may be approached with a different activity.
13	Hello time, Faces in all places Memory, Making expressions, Trading Faces, Bye	Trading faces could not be executed. The children were unable to understand the activity or perform. Insights: trading faces may not be appropriate for the given population. The goal must be approached with a different activity and must simplify in nature. The different activity must involve more number of pictures.
14	Hello time, Making expressions, Drawing Emotions, Bye	Insights: Drawing emotions could be an activity that is done before making expressions. The smileys may be introduced before introducing the actual facial expressions. However, they were not able to understand the reason for the emotion. They may need a different type of training to learn the causes of emotions.
15	Hello time, Drawing emotions People categories-Level 1, Bye	'People categories', level 1, could not be executed as successfully as expected. The participants were asked to identify the facial expressions given on the cards. Insights: People categories may need to be modified.
16	Hello time, Drawing emotions People categories, Spinner faces –Level 1, Bye	'People categories' was played as before. They were also asked to categorize into emotion boxes. Spinner faces were played. It could not be played as expected. Children could not explain in which they felt the emotion or act out a possible social situation where they or others feel the emotion. Insights: Spinner faces may need to be modified.
17	Hello time, People categories Spinner faces, Taking Perspectives –Level 1, Bye	'People categories' was played as before. They were also asked to categorize into emotion boxes. Spinner faces were played. It still could not be played as expected. Taking perspectives, level 1, were played with partial efficiency. Insights: Spinner faces may need to be modified. Taking

		perspectives activity may be executed with more efficiency if it is broken down to more levels.
18	Hello time, People categories, Taking Perspectives-Level 1, Bye	'People categories' was played as before. They were also asked to categorize into emotion boxes. Insights: Taking perspectives activity may be executed with more efficiency if it is broken down to more levels.
19	Hello time, People categories, Taking Perspectives-Level 2, Bye	Taking perspectives, level 2, required a higher level of imagination. It was difficult for the participants. It was practiced with very little efficiency. Insights: Taking perspectives, level 2, may be modified so that it helps the participant take the skills to real life settings.
20	Hello time, People categories, Taking Perspectives-Level 2, Bye	Taking perspectives, level 2, required a higher level of imagination. It was difficult for the participants. It was practiced with very little efficiency. Insights: Taking perspectives, level 2, may be modified so that it helps the participant take the skills to real life settings.

APPENDIX H: REVISED INTERVENTION PACKAGE USED FOR THE STUDY

(Submitted as a separate document)

APPENDIX I: SESSION-WISE RECORD OF INTERVENTION GIVEN TO PARTICIPANTS OF THE STUDY

Participants/ Sessions	C & D	E & F	G & H	K & L	M & N
Session 1	Building tower Fixing Puzzles Musical instrument Action song Ball Game	Building tower Fixing Puzzles Musical instrument Action song Ball Game	Building tower Fixing Puzzles Musical instrument Action song Ball Game	Building tower Fixing Puzzles Musical instrument Action song Ball Game	Building tower Fixing Puzzles Musical instrument Action song Ball Game
Session 2	Clay play Aiming at a target Cause & Effect toys Circle games Colouring on shapes	Clay play Aiming at a target Cause & Effect toys Circle games Colouring on shapes	Clay play Aiming at a target Cause & Effect toys Circle games Colouring on shapes	Clay play Aiming at a target Cause & Effect toys Circle games Colouring on shapes	Clay play Aiming at a target Cause & Effect toys Circle games Colouring on shapes
Session 3	Hello time Rapport activity Draw a Face – Level 1 Draw a Face - Level 2 Finding Faces- Level 1 Finding Faces – Level 2 Bye time	Hello time Rapport activity Draw a Face – Level 1 Draw a Face - Level 2 Finding Faces- Level 1 Finding Faces – Level 2 Bye time	Hello time Rapport activity Draw a Face – Level 1 Draw a Face - Level 2 Finding Faces- Level 1 Finding Faces – Level 2 Bye time	Hello time Rapport activity Draw a Face – Level 1 Draw a Face - Level 2 Finding Faces- Level 1 Finding Faces – Level 2 Bye time	Hello time Rapport activity Draw a Face – Level 1 Draw a Face - Level 2 Finding Faces- Level 1 Finding Faces – Level 2 Bye time
Session 4	Hello time Draw a Face- Level 2 Finding Faces- Level 2 Finding Faces- Level 3 Making Faces- Level 1 Bye	Hello time Draw a Face- Level 2 Finding Faces- Level 2 Finding Faces- Level 3 Making Faces- Level 1 Bye	Hello time Draw a Face- Level 2 Finding Faces- Level 2 Finding Faces- Level 3 Making Faces- Level 1 Bye	Hello time Draw a Face- Level 2 Finding Faces- Level 2 Finding Faces- Level 3 Making Faces- Level 1 Bye	Hello time Draw a Face- Level 2 Finding Faces- Level 2 Finding Faces- Level 3 Making Faces- Level 1 Bye
Session 5	Hello time Draw a face- Level 2 Finding faces- Level 4 Making faces- Level 1 Making faces- Level 2 Bye	Hello time Draw a face- Level 2 Finding faces- Level 4 Making faces- Level 2 Fruit & Vegetable faces-Level 1	Hello time Draw a face- Level 2 Finding faces- Level 4 Making faces- Level 2 Fruit & Vegetable faces-Level 1	Hello time Draw a face- Level 2 Finding faces- Level 3 Finding faces- Level 4 Making faces- Level 1 Bye	Hello time Draw a Face- Level 2 Finding faces- Level 3 Finding faces- Level 4 Making faces- Level 1 Bye

		Bye	Bye		
Home training activity	Finding faces-level 1	Making faces-level 1 & 2	Making faces-level 1	Making faces-level 1	Finding faces-level 1
Session 6	Hello time Draw a face-Level 2 Finding faces-Level 4 Making faces-Level 2 Fruit & Vegetable faces –Level 1 Bye	Hello time Making faces-Level 2 Fruit & Vegetable faces-Level 1 &2 Identify faces everywhere-Level 1 Bye	Hello time Making faces-Level 2 Fruit & Vegetable faces-Level 1 &2 Identify faces everywhere-Level 1 Bye	Hello time Finding faces-Level 4 Making faces-Level 1 Making faces-Level 2 Fruit & Vegetable faces-Level 1 Bye	Hello time Draw a face-Level 2 Finding faces-Level 3 Finding faces-Level 4 Making faces-Level 1 Bye
Session 7	Hello time Finding faces – Level 4 Making faces-Level 2 Fruit & Vegetable faces- Level 1&2 Identify faces everywhere – Level 1 Bye	Hello time Identify faces everywhere-Level 1 &2 Expressions-Level 1 Expressions-Level 2 Bye	Hello time Fruit & Vegetable faces-Level 1&2 Identify faces everywhere-Level 1 &2 Expressions-Level 1 Expressions-Level 2 Bye	Hello time Making faces-Level 1 Making faces-Level 2 Fruit & Vegetable faces-Level 1 Fruit & Vegetable faces-Level 2 Bye	Hello time Draw a face-Level 2 Finding faces – Level 4 Making faces-Level 1 Making faces-Level 2 Bye
Home training activity	Fruit & vegetable faces- Level 1	Expressions-Level 2	Expressions-Level 2	Fruit & Vegetable faces –Level 1	Making faces-level 1
Session 8	Hello time Making faces-Level 2 Fruit & Vegetable faces- Level 1&2 Identify faces everywhere-Level 1 &2 Bye	Hello time Identify faces everywhere-Level 2 Expressions-Level 1 Expressions-Level 2 Memory-Level 1 Bye	Hello time Identify faces everywhere-Level 2 Expressions-Level 1 Expressions-Level 2 Memory-Level 1 Bye	Hello time Fruit & Vegetable faces- Level 1 &2 Identifying faces everywhere-Level 1 Identifying faces everywhere-Level 2 Bye	Hello time Finding faces-Level 4 Making faces-Level 1 Making faces-Level 2 Fruit & Vegetable faces-Level 1 Bye
Session 9	Hello time Fruit & Vegetable faces- Level 1&2 Identify faces everywhere-Level 1&2 Expressions-	Hello time Expressions-Level 1 Expressions-Level 2 Expressions-Level 3 Memory-Level 1	Hello time Expressions-Level 1 Expressions-Level 2 Expressions-Level 3 Memory-Level 1	Hello time Fruit & Vegetable faces- Level 1 &2 Identifying faces everywhere-Level 2	Hello time Making faces-Level 1 Making faces-Level 2 Fruit & Vegetable faces-Level 1 Fruit &

	Level 1 Bye	Bye	Bye	Expressions- Level 1 Bye	Vegetable faces- Level 2 Bye
Home training activity	Expressions- level 1	Memory-Level 1	Memory-level 1	Identifying faces everywhere- level 1 & 2 Expressions- level 1	Fruit & vegetable faces- level 1
Session 10	Hello time Identify faces everywhere- Level 1&2 Expressions- Level 1 Expressions- Level 2 Bye	Hello time Expressions- Level 2 Expressions- Level 3 Memory-Level 1 Memory-Level 2 Bye	Hello time Expressions- Level 2 Expressions- Level 3 Memory-Level 1 Memory-Level 2 Bye	Hello time Identifying faces everywhere- Level 2 Expressions- Level 1 Expressions- level 2 Expressions- Level 3 Bye	Hello time Making faces- Level 2 Fruit & Vegetable faces- Level 1 & 2 Identifying faces everywhere- Level 1 Bye
Mid-assessment					
Session 11	Hello time Expressions- Level 1 Expressions- Level 2 Expressions- Level 3 Memory- Level 1 Bye	Hello time Memory-Level 2 Memory-Level 3 Emotions &actions-Level 1 Emotions & actions- Level 2 Bye	Hello time Memory-Level 2 Memory-Level 3 Emotions &actions- Level 1 & 2 Bye	Hello time Expressions- Level 1 Expressions- level 2 Expressions- Level 3 Memory-Level 1 Bye	Hello time Fruit & vegetable faces- Level 1 & 2 Identifying faces everywhere- Level 1 & 2 Expressions- Level 1 Bye
Home training activity	Expressions- level 2	Memory-Level 2 Emotions & actions- Level 2	Memory- level 2 Emotions & actions- level 2	Expressions- level 2 Memory- level 1	Identifying faces everywhere- level 1
Session 12	Hello time Expressions – Level 3 Memory- Level 1 Memory- Level 2 Emotions & actions-Level 1 Bye	Hello time Memory-Level 3 Memory-Level 4 Emotions & actions-Level 1 Emotions & actions-Level 2 Bye	Hello time Memory-Level 3 Memory-Level 4 Emotions & actions-Level 1 Emotions & actions-Level 2 Bye	Hello time Expressions- Level 3 Memory-Level 1 Memory-Level 2 Emotions and actions-Level 1 Bye	Hello time Fruit & Vegetable faces- Level 1 & 2 Identifying faces everywhere – Level 1 & 2 Expressions- Level 1 Expressions- Level 2

					Bye
Session 13	Hello time Expressions-Level 3 Memory-Level 2 Memory-Level 3 Emotions & Actions-Level 1 Bye	Hello time Emotions & actions-Level 2 Drawing smileys on facial expressions Recognizing facial expression Bye	Hello time Emotions & actions-Level 2 Drawing smileys on facial expressions Recognizing facial expression Bye	Hello time Memory-Level 2 Memory-Level 3 Emotions and actions-Level 1 Emotions and actions-Level 2 Bye	Hello time Identifying faces everywhere-Level 2 Expressions-Level 1 Expressions-Level 2 Expressions-Level 3 Bye
Home training activity	Memory – Level 1	Recognizing facial expression	Recognizing facial expression	Emotions and actions-Level 2	Expressions-level 1
Session 14	Hello time Memory – Level 3 Memory-Level 4 Emotions & Actions-Level 1 Emotions & Actions-Level 2 Bye	Hello time Drawing smileys on facial expressions Recognizing facial expression Identifying facial expressions-Level 1 Identifying facial expressions-Level 2 Bye	Hello time Drawing smileys on facial expressions Recognizing facial expression Identifying facial expressions-Level 1 Bye	Hello time Memory – Level 4 Emotions and actions-Level 2 Drawing smileys on facial expressions Recognizing facial expression. Bye	Hello time Identifying faces everywhere-Level 2 Expressions-Level 2 Expression-Level 3 Memory-Level 1 Bye
Session 15	Hello time Memory-Level 4 Emotions & Actions-Level 2 Draw smileys on facial expressions Recognizing facial expression, Bye	Hello time Recognizing facial expression Identifying facial expression-Level 1 Identifying facial expression-Level 2 & 3 My feelings Bye	Hello time Drawing smileys on facial expressions Recognizing facial expression Identifying facial expressions-Level 1 Identifying facial expressions-Level 2, Bye	Hello time, Emotions and actions-Level 2, Drawing smileys on facial expressions Recognizing facial expression. Identifying facial expressions-Level 1, Identifying facial expressions-Level 2 Bye	Hello time Expressions-Level 2 Expressions-Level 3 Memory-Level 1 Memory- Level 2 Bye
Home	Emotions &	Identifying	Identifying	Recognizing	Memory- level 1

training activity	Actions –level 2	facial expression-level 1 My feelings	facial expression-level 1	facial expressions Identifying facial expression-level 1	
Session 16	Hello Emotions & Actions-level 2 Draw smileys on facial expressions Recognizing facial expression Identifying facial expression-Level 1 Bye	Hello time Identifying facial expressions-2 Identifying facial expression-Level 3 & 4 My feelings Others feelings- Level 1 Bye	Recognizing facial expression Identifying facial expressions-Level 1 Identifying facial expressions-Level 2 Identifying facial expressions-Level 3 & 4 Bye	Hello time Recognizing facial expression. Bye Identifying facial expressions-Level 2, 3 & 4 My feelings Bye	Hello time Expressions-Level 2 Expressions-Level 3 Memory- Level 2 Emotions and actions- Level 1 Bye
Session 17	Hello Draw smileys on facial expressions Recognizing facial expression Identifying facial expression-Level 1 Identifying facial expression-Level 2 Bye	Hello time My feelings Others feelings-Level 1 Others feelings-Level 2 Faces and social situations-Level 1 Bye	Hello time Recognizing facial expression Identifying facial expressions-Level 2 Identifying facial expressions-Level 3 & 4 Bye	Hello time Identifying facial expressions-Level 3 & 4 My feelings Others feelings- Level 1 Others feelings- Level 2 Bye	Hello time Expressions-Level 3 Memory- Level 3 Emotions and actions- Level 1 Emotions & Actions- Level 2 Bye
Home training activity	Recognizing facial expressions Identifying facial expressions-Level 1	Others feelings- level 1 Faces and social situations-level 1	Identifying facial expression-level 3	My feelings Others feelings- level 2	Emotions & Actions- Level 1
Session 18	Hello time Recognizing facial expression Identifying facial expression-Level 2 Identifying	Hello time Others feelings-Level 2 Faces and social situations-Level 1 Faces and	Hello time Identifying facial expressions-Level 2 Identifying facial expressions-Level 3 & 4	Hello time My feelings Others feelings-Level 2 Faces and social situations-Level 1	Hello time Memory –Level 3 Memory- Level 4 Emotions and actions- Level 1 Emotions & Actions- Level 2

	facial expression- Level 3 & 4 My feelings. Bye	social situations- Level 2 Social situations and me-Level 1 Social situations and me-Level 2 Bye	My feelings Bye	Faces and social situations- Level 2 Bye	Bye
Session 19	Hello Identifying facial expression- Level 2, 3 & 4 My feelings Bye	Hello time Social situations and me- Level 1, Social situations and me-Level 2, Social situations and me- Level 3 Bye	Hello time Identifying facial expressions- Level 2, Identifying facial expressions- Level 3 & 4 My feelings Bye	Hello time Faces and social situations- Level 2, Social situations and me- Level 1, Social situations and me-Level 2, Social situations and me- Level 3,Bye	Hello time Memory-Level 3 Memory-Level 4 Emotions and actions- Level 2 Drawing smileys on facial expressions, Bye
Home training activity	Identifying facial expressions- level 3 My feelings	Faces & social situations- Level 2 Social situations & me- level 2	My feelings	Faces & social situations- level 2 Social situations and me –level 2 & 3	Emotions & actions- level 2
Session 20	Hello Identifying facial expression- Level 2, 3 & 4 My feelings Bye	Hello time Social situations and me- Level 1 Social situations and me-Level 2 Social situations and me- Level 3 Bye Cessation of sessions	Hello Identifying facial expressions- Level 3 & 4 My feelings Others feelings-Level 1 Bye	Hello time Social situations and me- Level 1 Social situations and me-Level 2 Social situations and me- Level 3 Bye Cessation of sessions	Hello time Memory-Level 4 Emotions and actions- Level 2 Drawing smileys on facial expressions Bye
Session 21	Hello Identifying facial expression- Level 2, 3 & 4 My feelings Others feelings- Level 1 Bye		Hello time Identifying facial expressions- Level 3 & 4 My feelings Others feelings- Level 1 Others		Hello time Memory- Level 4 Emotion and action- Level 2 Drawing smileys on facial expressions Bye

			feelings-Level 2 Bye		
Home training activity	Others feelings-level 1		Others feelings- level 1		Emotion & action- level 2
Session 22	Hello My feelings Others feelings-Level 1 Others feelings-Level 2 Bye		Hello time Identifying facial expressions-Level 3 & 4 My feelings Others feelings- Level 1 Others feelings-Level 2 Bye		Hello time Memory-Level 4 Emotion and action- Level 2 Drawing smileys on facial expressions Recognizing facial expressions Bye
Session 23	Hello Others feelings-Level 2 Faces & social situations-Level 1 Bye		Hello time My feelings, Others feelings-Level 1, Others feelings-Level 2, Faces and social situations-Level 1, Bye		Hello time Memory-4, Emotion and action-Level 2, Drawing smileys on facial expressions, Recognizing facial expressions, Bye
Home training activity	Others feelings- level 1 & 2 Faces & social situations-level 1		Others feelings-level 2 Faces and social situations-level 1		Recognizing facial expressions
Session 24	Hello Others feelings-Level 2 Faces & social situations-Level 1, Faces & social situations-Level 2 Bye		Hello time My feelings Others feelings-Level 1 Others feelings-Level 2 Faces and social situations-Level 1, Bye		Hello time Emotion and action-Level 2 Drawing smileys on facial expressions, Recognizing facial expressions, Identifying facial expressions-Level 1, Bye
Session 25	Hello time Faces & social		Hello time Others		Hello time Recognizing

	situations- Level 1, Faces & social situations- Level 2, Social situations & me-Level 1 Bye		feelings- Level 2 Faces and social situations- Level 1, Faces and social situations- Level 2, Bye		facial expressions Identifying facial expressions- Level 1, Identifying facial expressions- Level 2, My feelings Bye time
Home training activity	Faces & social situations- level 2		Faces & social situations- level 2		My feelings
Session 26	Hello time Faces & social situations- Level 2, Social situations and me-Level 1, Social situations and me-Level 2 Bye		Hello time Faces and social situations- Level 1, Faces and social situations- Level 2, Social situation and me- Level 1 Bye		Hello time Recognizing facial expressions Identifying facial expressions- Level 1, Identifying facial expressions- Level 2, My feelings Bye
Session 27	Hello time Social situations and me-Level 1, Social situations and me-Level 2, Social situations and me- Level 3, Bye		Hello time Faces and social situations- Level 2, Social situation and me-Level 1, Social situations and me- Level 2, Bye		Hello time Identifying facial expressions- Level 2, 3 & 4, My feelings Others feelings- Level 1, Bye
Home training activity	Social situations & me- level 2		Social situations & me- level 1 & 2		Others feelings- level 1
Session 28	Hello time Social situations and me-Level 1, Social situations and me- Level 2, Social situations and me- Level 3		Hello time Faces and social situations- Level 2, Social situations and me- Level 2, Social situations and me- Level 3,		Hello time Identifying facial expressions- Level 2, 3 & 4, My feelings Others feelings- Level 1, Others feelings-Level 2, Bye

	Bye		Bye		
Session 29	Hello time Social situations and me-Level 2,Social situations and me- Level 3, Bye		Hello time Faces and social situations- Level 2, Social situations and me- Level 2, Social situations and me- Level 3, Bye		Hello time My feelings, Others feelings- Level 1, Others feelings-Level 2 Faces and social situations-Level 1, Bye
Home training activity	Social situations and me- level 3		Social situations and me- level 2 & 3		Others feelings- level 1 & 2 Faces & social situations- level 1
Session 30	Hello time Social situations and me-Level 2 Social situations and me-Level 3		Hello time Faces and social situations- Level 2 Social situations and me- Level 2 Social situations and me- Level 3, Bye		Hello time Others feelings- Level 1 & 2 Faces and social situations- Level 1 Faces and social situations- Level 2 Bye